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Family of Chinese BA-construction -A Cognitive Approach

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Ph.D

2018

Family of Chinese BA-construction -A Cognitive Approach

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of the requirements of the
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Abstract

Chinese BA-constructions vary greatly in syntactic structure, semantic structure and the verb-construction relations. Although many studies of BA-constructions have previously been carried out, quite a few problems still persist. Many types of problem BA-constructions, thus, are still a big challenge to theoretical models of general linguistics.

The research has been conducted with the focus on the verb-construction relations in two aspects – i.e. the internal structure of BA-constructions and the interrelations of BA-construction variants.

In the first aspect, a new cognitive event frame has been developed on the basis of the related approaches including the construction grammar by Goldberg (1995, 2006, 2010, 2013), the event frame and its windowing-gapping organisations by Talmy (2000) and conceptual semantics by Jackendoff (1983, 1987, 1990). My original model differs from all these related approaches in the sense that it simultaneously contains the gapped sub-events and the peripheral elements so as to account for the problem BA-constructions, such as unmatched BA-constructions and verbless BA-constructions, to which all the other approaches are inapplicable.

In the second aspect, BA-constructions also vary along with their verb-construction relations. The variants of BA-constructions are taken as a family represented within the network of specificity. These variants most highly attract different verbs. These verbs and their BA-constructions all share the two types of semantic compatibility. However, to associate the verb meaning with the constructional meaning of the unmatched BA-constructions, some gapped sub-events and peripheral elements are indispensable to mediate the verb meaning and the constructional meaning.

The portion principle I have proposed within the network is found to make a correct prediction of the correspondence between the token-frequency and the degree of specificity of BA-construction. Within this network, the typicality and distributions of BA-construction variants are adequately accounted for in the raw-frequency statistical analysis. Their verb-construction relations are studied in the collocation analysis. The typical member of the BA-construction family, thus, is found to be the caused-motion BA-construction with the transitive postverb or the postverbal preposition.

In all, my study has made some original contributions to both the area of Chinese Language study and the area of Cognitive Linguistics, particular in the areas of Cognitive Construction Grammar and cognitive semantics.

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List of Abbreviations

ASP	aspect-marker
AZ	active zone
BA	BA-marker
C-ASP	continuous aspect marker.
CCL	Center for Chinese Linguistics (Peking University)
CNC	Balanced National Corpus of Modern Chinese
COMP	complement marker
CON	conjunction
DC	DE-construction
DE	a conjunction leading a DE-construction
DV	direction postverb
Gl	goal
I-Gl	intended-goal
L	location
M	material
MFR	Minimal Fusion Requirement
NP	noun phrase
PAR	particle
OBJ	object
OBL	oblique
PP	prepositional phrase
Pt	patient
POS	possessive marker
Q	question particle
QUA	quantifier
Rc	receiver
RV	resultative postverb
Rst	result
Sc	source

Sem.	semantic
SOV	subject-object-verb
SPG	Source-Path-Goal
SUBJ	subject
SVO	subject-verb-object
Syn.	syntactic
TIP	Temporal Iconic Principle
Th	theme
tr	trajector
TDV	transfer-direction postverb
V	verb

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Last but not least, my biggest gratitude goes to my beloved father and mother, who made a real adult out of a child. Their love and faith in me are always my motivation. This dissertation is dedicated to my dear parents.

Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others.

No ethical issues will be involved in this thesis. The data used in this thesis come from the published corpus and my intuition.

I declare that the Word Count of this Thesis is 84,295 words.

Name: Qian-wen, Cheng

Signature:

Date:

1 Introduction

1.1 Overview

Chinese BA-constructions contain many sub-types which are distinctive and yet related both in the aspects of syntax and semantics. Regardless of the rich variations, BA-constructions are treated as a disposal construction or as a causative construction (Wang 1954; Thompson 1973, 1983; Li 1974; Hopper and Thompson 1980; Guo 2003; Ye 2004). They are even treated as a construction containing an affected entity realised as the grammatical object or a construction containing a causative result (Sybesma 1992; Jin 1993, 1997; Cui 1995). However, all the previous studies on Chinese BA-constructions are too general as a theoretical model to cover all the possible sub-types of the BA-constructions. Thus, it is not true that Chinese BA-constructions have been thoroughly described. The truth is that quite a few problems remain.

Recent models and theories of cognitive linguistics may offer some promising approaches to the BA-constructions. The cognitive study of the semantic relations between verbs and their constructions, in particular, offers some significant assistance in searching for the solutions to the remaining problems. However, some problems still left unsolved. Since the Chinese BA-construction is a very big issue in the study of the Chinese language, it is necessary to solve these remaining problems in the study of BA-constructions. Interestingly, these remaining problems also serve as big challenges to the adequacy of any theoretical models. In other words, these problem BA-constructions serve as very important data to test the adequacy of the theoretical models and the views behind them.

In this introduction chapter, Section 1.2 introduces the possible variations of Chinese BA-constructions. Section 1.3 discusses the relevant theories and models and their advantages and disadvantages in applying to Chinese BA-constructions. Section 1.4 presents my research questions. Section 1.5 briefly introduces the cognitive event frame that I propose as the solution to the problems. Finally, Section 1.6 introduces the online corpus and data I used in the study.

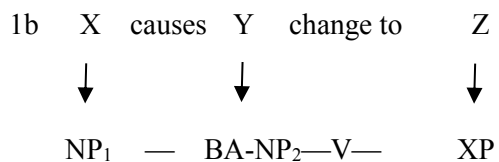
1.2 Brief introduction of BA-construction variants

Chinese BA-constructions can carry a two-character main verb or a one-character main verb. I have noticed that most BA-constructions contain the latter type. In this thesis, I focus on the study of the BA-constructions with the single-character main verb.

Many BA-constructions convey the meaning that ‘X causes Y to be involved in a possible change leading to a causative result Z.’ In most cases, X can be the cause realised as a noun phrase. Y is the acted-upon entity to be realised as the BA-marked noun phrase. Z can be realised as a phrase or a minor-clause designating the specific causative result. Example 1a, for instance, conveys the message that the teacher put the book on the table.

- 1a *lao-shi ba shu fang zai zhuo-zi shang*
 Teacher BA book put on table up
 ‘The teacher put the book on the table.’

Lao-shi (teacher) works as the cause X; *shu* (book) works as the caused entity Y (example 1a); the prepositional phrase *zai zhuo-zi shang* (on the table) works as the causative result Z, denoting the final location of the caused-motion. This BA-sentence is understood as the X teacher causes the Y book to be relocated on the final location table. The three elements X, Y and Z are realised (see the arrows in 1b) as NP₁, BA-NP₂, and XP (in this case as PP). This type of BA-construction can be represented as 1b:

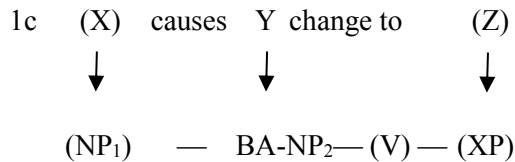


If all the Chinese BA-sentences had the same internal structure as illustrated in 1a and 1b, then BA-sentences should be accounted for as a uniformed construction. But, it turns out that it is not the case. In fact, Chinese BA-constructions vary greatly. I will introduce their variants in the following two aspects. First, BA-construction varies because most elements represented in 1b (except Y) are optional. Second, the linking between the semantic components and the syntactic components vary greatly. There are not merely one-to-one correspondences between semantics and syntax as illustrated in 1b. The linkings formally represented in 1b represent merely one type. Section 1.2.1 will introduce these optional elements; Section 1.2.2 will introduce various linking patterns. Both the option of the most elements and the variations of linkings together lead to the complication of the Chinese BA-constructions. Any theoretical account neglecting these two types

of variations is sure to beg many questions.

1.2.1 Optional elements

It is important to report the observation that both X and Z are optional. It is more important to notice that the main verb of the BA-construction is also optional. Thus, Structure 1b should be rewritten as 1c below with the optional elements labelled in the parentheses.



These optional elements lead to variations of BA-constructions.

X is typically realised as the subject NP. Yet, it is quite common in Chinese to have sentences without subject NP. BA-sentences are no exception. There are quite a lot of subjectless BA-sentences in the data. Both 2a and 2b convey the message that he/someone sent the books to the children.

2a	<i>ta</i>	<i>ba</i>	<i>shu</i>	<i>song</i>	<i>gei</i>	<i>le</i>	<i>hai-zi-men</i>
	He	BA	book	send	give	ASP	children

‘He sent the books to the children.’

2b	<i>ba</i>	<i>shu</i>	<i>song</i>	<i>gei</i>	<i>le</i>	<i>hai-zi-men</i>
	BA	book	send	give	ASP	children

‘[Someone] sent the books to the children.’

2a has the subject *ta* (he), while 2b has no subject NP.

Y is typically realised as the grammatical object BA-marked NP. This object NP is obligatory. In fact, it is the only element in BA-sentences that is obligatory.

The predicate verb in BA-sentences is also optional. Chinese allows a few verbless BA-sentences. 3 is a verbless BA-sentence. It conveys the message that what can he do to harm you.

3 *ta neng ba ni zen-me-yang*

He can BA you how

‘What can he do to (harm) you.’¹

The Z-XP in a BA-construction is optional. In other words, there are at least two types of BA-constructions – i.e. the BA-construction with Z-XP and the BA-construction without Z-XP. Both 4a and 4b, for instance, designate that he threw the ball. Example 4a conveys the message that he threw the ball into the basket; Example 4b conveys the message that he threw the ball away.

4a *ta ba qiu reng jin kuang li le*

He BA ball throw enter basket inside PAR

‘He threw the ball into the basket.’

4b *ta ba qiu reng le*

He BA ball throw PAR

‘He threw the ball [away].’

Sentence 4a contains the Z-XP *jin kuang li* (enter basket), which explicitly expresses and specifies the causative result. Sentence 4b has no Z-XP and no result is expressed and the possible change is only implied. I call the former type as explicit BA-construction and the latter type as implicit BA-construction.

1.2.2 Various linkings

The possible variations are also due to various linking patterns. Both the implicit BA-constructions and the explicit BA-constructions have their respective variations. There are three important types of linking variations worth discussing – i.e. the implicit variation, the Z-XP variation and the Y-object variation.

(1) The implicit variation refers to the phenomenon that the main verb in the implicit BA-constructions is usually accompanied by the following element(s). It can be a particle at the

¹ This BA-sentence implies that he cannot do anything to you.

end of the sentence suggesting the completion of the event which sentence denotes (see 5a), a verb quantifier (see 5b) or a copying-verb (see 5c). All the 5a-c convey the message that someone cleaned the table.

5a *ba zhuo-zi ca le* (sentence particle)
 BA table wipe PAR
 ‘[Someone] wiped the table.’

5b *ba zhuo-zi ca le yi-bian* (verb-quantifier)
 BA table wipe ASP one-time
 ‘[Someone] wiped the table once.’

5c *ba zhuo-zi ca le ca* (copying verb)
 BA table wipe ASP clean
 ‘[Someone] wiped the table.’

Thus, the implicit BA-constructions vary in the aspect of the accompanying element(s).

(2) The explicit BA-constructions vary greatly. The most important variation observed is that the result Z can be further specified as the result of the three basic types of change – i.e. the change of location (see 6a), the change of state (see 6b), and the change of possession (see 6c).

All the three examples below have the same verb *song* (send). Example 6a conveys the message that someone sent the clothes home; Example 6b conveys the message that someone lost clothes in the process of sending it somewhere; Example 6c conveys the message that someone sent the clothes to her.

6a *ba yi-fu song dao jia-li* (caused-motion BA-construction)
 BA clothes send reach home
 ‘[Someone] sent the clothes home.’

6b *ba yi-fu song diu le* (resultative BA-construction)

BA clothes send lost PAR

‘[Someone] lost the clothes in the process of sending it somewhere.’

6c *ba yi-fu song gei ta le* (caused-transfer BA-construction)

BA clothes send give her PAR

‘[Someone] sent clothes to her.’

It can be noticed that what differs one from the other is the XP. The Z-XP *dao jia-li* (reach home) in 6a designates the final location; the Z-XP *diu* (lost) in 6b designates the final state; the Z-XP *gei ta* (give her) in 6c designates the final possessor.

Syntactically, the XP can be of different syntactic units. At least four units are observable in the data. They are prepositional phrase (see 7a), postverbal phrase (see 7b), noun phrase (see 7c) and minor-clause (see 7d). Example 7a conveys the message that someone locked him up in the cave; Example 7b conveys the message that someone locked him and made him mad; Example 7c conveys the message that someone locked him in the cave.

7a *ba ta guan zai shan-dong li* (prepositional phrase)

BA him lock in cave inside

‘[Someone] locked him up in the cave.’

7b *ba ta guan cheng feng-zi* (postverbal phrase)

BA him lock become mad-man

‘[Someone] locked him and made him mad.’

7c *ba ta guan shan-dong li le* (noun phrase)

BA him lock cave inside PAR

‘[Someone] locked him in the cave.’

Although the XPs of the three exemplified BA-sentences are different, the sentences all convey the

message that someone locked him and he was affected as a result.

(3) The obligatory component Y is always linked with the BA-marked grammatical object. Yet, the ‘verb participant roles’ associated with the component Y varies. The four BA-sentences illustrated in 8a-8d all belong to the resultative BA-construction with the patient realised as the grammatical object. However, the same patient in the same type of BA-construction is associated with different concepts – i.e. *la-ji* (rubbish) in 8a, *di-ban* (floor) in 8b, *sao-ba* (broom) in 8c and *xie* (shoes) in 8d. Example 8a conveys the message that someone swept away the dust; Example 8b conveys the message that someone swept and cleaned the floor; Example 8c conveys the message that someone broke the broom while sweeping the floor; Example 8d conveys the message that someone smudged his shoes while sweeping the floor.

8a *ba la-ji sao gan-jing*
BA rubbish sweep clean
‘[Someone] swept away the rubbish.’

8b *ba di-ban sao gan-jing*
BA floor sweep clean
‘[Someone] swept and cleaned the floor.’

8c *ba sao-ba sao duan le*
BA broom sweep broke PAR
‘[Someone] broke the broom while sweeping [the floor].’

8d *ba xie dou sao zang le*
BA shoes also sweep dirty PAR
‘[Someone] smudged his shoes in sweeping [the floor].’

In this case of variation, the concepts associated with the same patient are all different.

Besides the linking variation illustrated in the four exemplified sentences above, the Y element, which is linked with the BA-marked grammatical object, can also be related to different arguments

in different types of BA-constructions. Both 9a and 9b, for example, convey the message that they moved the earth into the pit.

9a *ta-men ba keng tian shang tu*
They BA pit fill up soil
'They filled the pit with soil.'

9b *ta-men ba tu tian jin keng li*
They BA soil fill enter pit inside
'They filled the soil into the pit.'

9a is the resultative BA-construction with the goal *keng* (pit) as the grammatical object. 9b is the caused-motion BA-construction with the theme *tu* (soil) as the grammatical object. In addition to these two types of Y-object variation, Chinese BA-sentences can even have the actor as the grammatical object (see 10). Example 10 conveys the message that his bun made the eater sick.

10 *ta-de bao-zi ba ren chi bing le* (actor as grammatical object)
His bun BA people eat sick PAR
'His bun made the eater sick.'

1.2.3 Various verb-construction relations

Besides the optional elements and the linking variations, another factor that makes the Chinese BA-constructions complicated is the verb-construction relations. English consists of matched verb-construction relation (i.e., one-to-one correspondence between verb meaning and constructional meaning) and mismatched verb-construction relation (i.e., at least one correspondence between verb meaning and constructional meaning) (Goldberg 1995). In addition to these two types of verb-construction relations, Chinese can have unmatched verb-construction relation, that is, no correspondence between the verb and constructional meaning. Such as the verbless BA-construction. Since the verbless BA-construction contains no verb, it is impossible to have any direct verb-construction relation. Example 11, for instance, conveys the message that (what makes) you so happy.

- 11 *kan ba ni gao-xing-de*
 Look BA you happy
 ‘(What makes) you so happy.’

The adjective *gao-xing-de* (pleased) in 11 is interpreted as the resultative state and fill the slot of XP.

Besides the verbless case, Chinese also has the unmatched verb-construction relation. In such a semantic relation the verb meaning is not directly associated with the constructional meaning. Example 12, for instance, conveys the message that someone spent all his savings on food only in two months.

- 12 *liang-ge yue jiu ba ji-xu chi wan le*
 Two months just BA savings eat finish PAR
 ‘[Someone] spent all his savings on food only in two months’

In this exemplified BA-sentence, the BA-marked grammatical object is savings. But the main verb is *chi* (eat) instead of spend. Thus, no participant roles of the verb *chi* (eat) are directly associated with the resultative BA-construction denoting that the savings were all gone. In this sense, there is no correspondence between the verb and constructional meanings. I name it unmatched BA-construction. Intuitively, native speakers all know that the savings must have been spent on the food. This encyclopaedic knowledge served as the important part of the background knowledge for understanding is missing in the surface expression.

Besides the four types of verb-construction relations introduced above – i.e. the matched type, the mismatched type, the unmatched type and the verbless type – it is also very important to notice that various types of BA-constructions discussed above require different co-occurring verbs.

In sum, complicated as these various BA-constructions are, it is impossible to account for them as a uniform construction or as a uniform semantic-form pairing. It is equally difficult to account for the verb-construction relations and their distributions in a uniform semantic-form pairing.

Many theoretical approaches and models have made some attempt to account for the Chinese BA-constructions as a uniform construction. They have indeed made some contributions to the

study of BA-constructions. However, some problems remain. Some attempts can also be made in applying some approaches of cognitive linguistics. New achievements have been made and yet some problems persist. I will briefly introduce these theoretical approaches and models in the following sections.

1.3 Various approaches to Chinese BA-construction

It is a big challenge to account for all the sub-types of BA-constructions. Various approaches to Chinese BA-sentences are introduced in two parts. Firstly, some previous studies on BA-construction are introduced. They include the disposal approach and the transitivity approach. Secondly, more recent cognitive linguistics approaches to some extent applicable to BA-constructions are introduced. They include the cognitive construction grammar by Goldberg (1995, 2006) and the frame semantics by Fillmore (1982, 1985a) and Talmy (2000) and the force-dynamic patterns by both Talmy (2000) and Jackendoff (1990, 2002). In reviewing these theoretical models, some attempts are made to search for solutions to the remaining problems. At the same time, these problem BA-constructions also are used to test the adequacy of these theoretical models. Furthermore, a new model is attempted to offer adequate solutions to the remaining problems.

1.3.1 Causativity studies

Chinese BA-sentences have been studied with various approaches. At least two of them are worth discussing. They are the disposal approach and the transitivity approach. They both are related to the meaning of causation. In their (Wang 1954; Thompson (1973; Sybesma 1992) analysis, Chinese BA-sentences are viewed as a transitive construction or a causative construction. Their accounts for Chinese BA-constructions cover many BA-constructions, but not all. Their account is too general to cover all the possible types of BA-constructions. Nor can these approaches offer a general account for them (See Chapter Two).

The ‘disposal view’ holders insist that Chinese BA-sentences should be analysed as a disposal construction (i.e., the grammatical object is handled, disposed and etc; see chapter 2 for details). The researchers of this group are more interested in the extended interpretation of the term disposal and the ways that the BA-marked grammatical object is handled. However, some BA-sentences cannot be interpreted as such a construction. Example 13, for instance, conveys the message that

only three glasses of wine made him drunk.

- 13 *san-bei* *jiu* *jiu ba ta he* *zui* *le*
Three glass wine only BA he drink drunken PAR
'Only three glasses of wine made him drunk.'

It is unreasonable to interpret 13 as 'he is handled by the wine'. The wine did not do anything to the drinker (The wine is the cause instead of the agent). Instead, it is the drinker that made himself drunk.

Following Thompson's transitivity analysis, many other linguists analyse BA-sentences as a transitive construction. According to Thompson (1973:72), the transitivity is delimited as "the carrying over of an activity from an agent to construction." Li (1974) even considers the transitivity as one of the features of BA-construction. According to Li (1974:205), '[t]he nature of a ba-sentence is to describe the particular action made upon its object.' However, Example 13 can never be understood as the wine that executes an action upon the drinker and made him drunk.

Sybesma (1992) treats BA-construction as a causative construction. He interprets the subject of the BA-construction as the cause of the construction and the BA-marked grammatical object as the affected entity. However, not all the subjects of BA-sentences can be understood as cause. Nor can all the BA-marked grammatical objects be interpreted as an affected entity. Example 14, for instance, conveys the message that the students read the whole poem.

- 14 *xue-sheng* *ba na-shou shi* *du* *le* *yi-bian*
Student BA that poem read ASP once
'The students read the whole poem.'

The BA-marked *na-shou shi* (that poem) can never be understood as being affected in reading. It is also odd to say that the student is the cause to cause the poem to be read.

In all, both the disposal view and the transitivity approach have their problems. They can be applied to many variants of BA-constructions, but not all. The detailed argument will be unfolded in Chapter Two.

1.3.2 Cognitive approaches

To account for BA-constructions, some cognitive linguistic approaches are tried for four reasons. Firstly, Cognitive Linguistics insists on a general theory applicable to all possible sentences, including core sentences and peripheral sentences. Secondly, Cognitive Linguistics emphasises the importance of conceptual base of language. Thirdly, Cognitive Linguists believe that sentences are not solely derived from verb meaning. Fourthly, to researchers of Cognitive Linguistics, an adequate approach is the usage-based approach.

In this thesis, three versions of cognitive linguistics theories are relevant and examined. They are Cognitive Construction Grammar (Goldberg 1995, 2006), Frame Semantics (Fillmore 1982, 1985a, 1994) and Cognitive Semantics (Talmy 2000) including event frame with its windowing-gapping organisation and force-dynamic event frames.

Goldberg (1995, 2006) argues that the constructional meaning is not derived from the verb meaning. Instead, construction has its independent meaning. The clause meaning is the integration of verb meaning (or encyclopaedic knowledge) into the constructional meaning. The verb-construction semantic integration is achieved through fusion between verb participant roles and argument roles. Goldberg displayed two types of verb-construction relationship — i.e., the matched relation between participant roles and argument roles and their mismatched relation (i.e., there is some correspondence between the participant roles of verbs and argument roles of construction).

My study finds that the fusion principles proposed by Goldberg (1995) nicely capture the matched (i.e., one-to-one correspondence between verb and constructional meaning) and some mismatch BA-constructions (i.e., at least one correspondence between verb and constructional meaning. The construction also contributes meaning.). However, I have observed that the verb and its construction in a BA-construction can be unmatched. In an unmatched BA-construction, there exists no direct correspondence between participant roles and argument roles (see the detailed discussion in Chapter Four). Such unmatched BA-sentences urge a revision of the integration-fusion mechanisms by Goldberg (1995).

The first step of revision is carried out in the scope of the verb encyclopaedic knowledge, which Goldberg represents as a semantic frame. The semantic frame (Fillmore 1982, 1985a; Fillmore and Atkins (1992; 1994) functions as the background knowledge with which sentences are understood. In other words, sentences are understood within their relevant frame(s). A semantic

frame can also serve as the background knowledge for a group of constructions. That is, the semantic structures of a frame can be construed as various constructions. However, the semantic frame as a theoretical model is challenged by the unmatched BA-construction. This suggests that to account for the unmatched BA-constructions, some revision is still indispensable (see Chapter Five).

Talmy (2000) argues that an event frame represents a segment of conceptualised knowledge. Such event frame can be superimposed upon with various windowing-gapping organisations. Following Talmy's conceptual organisation, I contend that event frame with different windowing-gapping organisations can be realised as various constructions. Such a revised semantic frame can solve some of the problems arising from the description of the unmatched BA-construction. Yet, I found some peripheral event frame elements which are excluded by Talmy is indispensable so as to mediate the conceptual gap between the verb meaning and constructional meaning (see Chapter Five and Chapter Six for a detailed discussion).

1.4 Research questions

The Chinese BA-constructions fall into the explicit type and the implicit type. The disposal view (Wang 1954), the causative view (Thompson 1973, 1983; and Hopper and Thompson 1980) and the affected view (Sybesma 1992) cover merely some of the explicit BA-constructions. However, not all the explicit BA-constructions allow the disposal reading or causation reading. Besides, neither the disposal view nor the causative view is adequate for the implicit BA-construction. In this sense, no general statement of theirs is sufficient for all the BA-constructions. Since it is impossible for a single general statement to accurately captures all the BA-constructions, this thesis, then, makes a great effort to answer the question that how are all the variants of Chinese BA-constructions adequately accounted for.

Section 1.2 introduced the observation that different variants of BA-constructions co-occur with different verbs. In other words, BA-constructions vary along with their licensed verbs. Up till now, no literature has seriously studied this area of distributions. I make a first attempt at addressing the co-occurring relations between BA-construction variants and their respective verbs. These two general issues can be restated in the following specific research questions.

In Cognitive Linguistics analysis, construction is taken as an important unit for analysis. It is viewed as a meaning-form pairing. In Goldberg's construction grammar, the verb meaning is

treated as encyclopaedic knowledge and is integrated into the constructional meaning to form a sentence meaning. The verb-construction semantic relations in various BA-constructions, as discussed in Section 1.2, are classified at least into four types. They are matched-up relations, mismatched relations, unmatched relations and ‘verbless relations’. Both the unmatched BA-construction and the verbless BA-construction serve as a strong counter-example against any prevailing theoretical models. Thus, the most urgent research question we must ask is how to account for such unmatched and verbless types of BA-constructions.

In Langacker’s (2008) analysis, the same portion of conceptual content (or encyclopaedic knowledge in Goldberg’s sense) can be construed into several constructions. In the study of the BA-construction variations, I have also noticed that some different BA-constructions containing the same verb share the conceptual content. Thus, the research question concerning the BA-constructions I have to address is that what is the formal representation of the conceptual content and what are their construing patterns for BA-constructions. Besides, I have observed that some construing constructions are more frequently used than others. Then, what are their distributions?

As Section 1.2 demonstrated, most components of the BA-construction are optional. The more components are explicitly expressed, the more specific their construction becomes. Not all variants have the same occurring type frequency. Another question to be addressed, then, is that what is the correspondence between specificity and occurring frequency.

It is expected that not all the verbs can occur in all the BA-constructions. Not all the verbs can occur even in one BA-construction variant. The question, then, can be asked is which verbs are licensed in which variant(s) of BA-constructions’.

In sum, to account for all the possible core and peripheral Chinese BA-sentences, variants of BA-constructions should be included in the scope of the study. In this present thesis, the BA-constructions are studied in the following four aspects – i.e. (1) the internal relations between verb and construction, (2) the external relations between various construing BA-constructions, (3) the distributions of the BA-constructions and their verbs, and (4) the ways that the variants of BA-constructions are organised.

In all, complicated and rich variants of Chinese BA-constructions are systematically investigated in two dimensions. Firstly, I attempt to solve the problems arising from the study of the unmatched BA-construction and the verbless BA-construction. Secondly, I treat Chinese

BA-constructions as a family, within which the possible members are interrelated and their distributions are well accounted for.

Again, I list the research questions which I address in this thesis as follows:

(1) BA-construction has a great number of variants. Previous studies on BA-construction only cover some of these variants. The main research question I set is that how are all the variants of Chinese BA-constructions adequately accounted for? This main research question can be specified into at least six questions as follows,

(1.1) BA-constructions vary along with their licensed verbs, yet no literature discusses this in detail. The first research question can be specified as ‘What is the co-occurring relations between BA-construction variants and their respective verbs?’

(1.2) In terms of verb-construction relation, like English, BA-construction has the matched and mismatched constructions (cf. Goldberg 1995). However, BA-construction has two extra types, unmatched construction, verbless construction, both of which are perfectly acceptable in Chinese. How are such unmatched and verbless types of BA-constructions accounted for?

(1.3) As regards the relationship between the verb and BA-construction, It is observed that one main verb may co-occur with different variants of BA-construction, sharing the similar conceptual content. The question arises: what are the construing patterns and the formal representation for the BA-construction?

(1.4) Furthermore, some of the construing patterns are found to be much more frequent than others. What are usage distributions of BA-construction variants?

(1.5) It is expected that not all the verbs can occur in all the BA-constructions. Not all the verbs can occur even in one BA-construction variant. Which verbs are licensed in which variant(s) of BA-constructions?

(1.6) BA-construction variants are observed to have different degrees of specificity. That is, some variants, such as explicit BA-constructions, are more specific than others, such as implicit BA-constructions. It is expected that these variants may have different usage distributions. Then, what is the relationship between the specificity and occurring frequency with regard to their different usage distributions?

1.5 Theoretical model and methods

All the research questions seem to concern with the verb-construction relations. They can be

summarised as two tasks – i.e. to search for the solution to the problems of unmatched BA-construction and verbless BA-construction and to search for the solution to the problems of variations.

To carry out the first task, I argue that in the case of unmatched BA-construction, the encyclopaedic knowledge proposed by Goldberg (1995) to represent verb event meaning is too strictly limited. In other words, the encyclopaedic knowledge of the verb event is not enough to match up with the construction event. There have to be some unexpressed concepts mediating between the verb event semantics and the constructional semantics. Following this line of argument, I build up a theoretical model of cognitive event frame to include these mediating concepts.

Like Fillmore's (1977a, 1982, 1985) semantic frame, the cognitive event frame (CEF in short) I propose in this thesis also serves as the background knowledge for understanding sentences. This background knowledge represented by a CEF has a wider coverage (see Chapter Six). It represents the encyclopaedic knowledge of the sentence, but not that of verb proposed by Goldberg (1995). Of this expanded encyclopaedic knowledge, the verb semantic frame is only a part. Based on this assumption, the CEF also contains gapped concepts as the event frame does in Talmy's (2000) analysis.

The CEF expanded from the verb event frame is inclusive enough to cover not only the mismatch BA-constructions but also the unmatched BA-constructions as well as the verbless ones. Its gapped elements, as well as the windowed ones, are related to mediate between the unmatched verb meaning and the constructional meaning and to form a coherent referent frame for understanding the sentence in question.

The CEF I propose is also understood as a formal representation of the conceptual content which is construed into different constructions (cf. Langacker 2008). Such CEFs are applicable to various BA-constructions with different trajector-objects. Thus, the CEF is built to serve two purposes. It offers a formal account of all the four types of the BA-constructions, including the unmatched BA-constructions and the verbless BA-constructions. It also offers a formal account of the shared conceptual content (or shared encyclopaedic knowledge) and its various construed BA-constructions.

Besides the internal structures of BA-constructions, I also focus my study, as the second task, on the interrelations among the BA-construction variants and search for the possible solution to the variations of BA-constructions. Since the general BA-construction, as represented in Section 1.2,

contains more optional components than obligatory ones, variants are expected. I attempt to organise all the possible BA-construction variants into a family. I build up a network model with various levels to account for the BA-construction family. Following Goldberg's (1995) three-level organisation of construction, I set up a three-level organisation for BA-construction. I set up the top skeletal level and the bottom substance level of BA-constructions. At the top (the skeletal level), the general BA-construction is positioned with the slots (i.e., NP1/ Topic/ Subject, NP2/ Trajector/ BA-marked object, main verb, oblique) waiting to be filled ; at the mid-level, the verb-slot is filled with various verbs; and at the bottom (substance or micro-construction level), all slots are filled.

It is expected that more levels are set up between the top and the bottom levels. To account for variations of BA-constructions and their distributions, three types of semantic relations have to be investigated. They include (1) the type of the semantic relations between the main verbs and their BA-constructions, (2) the semantic relations between the variants of the Z-XPs and the BA-constructions in which the Z-XPs occur, and (3) the semantic relations between the main verbs and their following XPs. I am using collostructional analysis (Gries 2003, 2004, 2005) to investigate the correspondence between various types of BA-constructions, containing different semantic relations.

In all, the Chinese BA-constructions, particularly unmatched ones, are more adequately accounted for if the encyclopaedic knowledge of verb event is expanded into that of the construction event. Following this line of argument, I attempt to establish the CEF model.

I also contend that the Chinese BA-construction is more adequately accounted for as a family of constructions. The family members are distinctive from each other in the aspects of verb-construction relations and their specificity. They also have different occurring or co-occurring frequency counts. It is expected that there exists some correspondence between their frequency count and the verb-construction relations. To account for such correspondence, I use the statistical analysis including the raw-frequency analysis and the collostructional analysis.

1.6 Organisation of the thesis

This thesis consists of two major parts. The first part explores various approaches and evaluates the possible results of their studies. It also points out the remaining problems. The second part discusses the model I build up to offer some solutions to the remaining problems and the methods that I use to search for the solutions to these problems.

The discussion of the first part is unfolded into three chapters – i.e. Chapters Two-Five. Chapter Two introduces BA-construction briefly and mainly reviews the study of BA-construction with both the disposal approach and the transitivity approach.

The constructionist approach by Goldberg (1995, 2006) pushes the study of causation into depth. Chapter Four mainly reviews her theory and her fusion model possibly applied to Chinese BA-constructions. The constructionist approach rightfully argues that the construction is not derived from the verb meaning. Instead, the verb meaning is merely integrated into the skeletal construction via fusion. Although her fusion model can be applied to many mismatch BA-constructions, it cannot be applicable at least to unmatched BA-constructions and verbless BA-constructions. To account for Chinese BA-constructions, the semantic coherence principle of fusion also needs revision.

The unmatched BA-construction and the verbless BA-construction cannot be accounted for without some unexpressed concepts mediating between verb and construction. I introduce and discuss, in Chapter Five the windowing-gapping organisation which is used to be superimposed upon the event frame (Talmy 2000). In Talmy's analysis, the event frame consists of both windowed (expressed) concepts and gapped (unexpressed) concepts. However, his limited range of event frame, unfortunately, excludes peripheral elements which are indispensable for Chinese BA-constructions. This chapter also discusses what Force-dynamic patterns can offer to the study of causative BA-constructions.

Part two consists of four chapters – i.e. Chapters Six – Nine. Chapter Six proposes a new version of the semantic frame, which is named as cognitive event frame (CEF in short). The CEF is built upon the basis of Talmy's (2000) event frame and its windowing-gapping organisation as well as Goldberg's (1995) fusion mechanism. Yet, the CEF differs from them both. The chapter will discuss the internal structure and its advantage in treating various types of Chinese BA-constructions, including the unmatched BA-constructions and the verbless BA-constructions. Chapter Seven discusses the ways the CEF is construed as various BA-constructions.

The last two chapters bring the attention mainly to the family of BA-constructions. I build up a network to illustrate the interrelations of the family members in Chapter Eight. The network is not designed to present our mental grammar, it is simply a map of general-specific organization of BA-construction variants. I argue for the correspondence between the specificity of BA-constructions and their frequency count and the correspondence between the three basic types

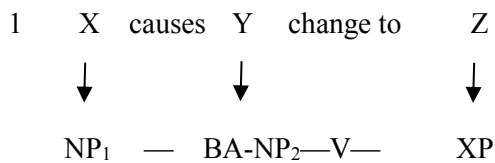
of the caused-change and their frequency count as well. Then, I adopt the collocation analysis in Chapter Nine to uncover the various verb-construction relations and their related distributions. Both types of the statistical analysis provide evidence for the established network of the BA-construction family and their variations.

2 Causative approach to BA-constructions

2.1 The nature of BA-construction

Goldberg describes the semantics of English caused-motion construction as the event that “the causer argument directly causes the theme argument to move along a path designated by the directional phrase; that is, ‘X CAUSES Y to MOVE Z’”. (Goldberg 1995: 152). The causer, the theme and the motion path or goal are designated as X, Y, and Z respectively. Following Goldberg’s way of describing the semantics of a construction, the most frequent Chinese BA-construction designates the meaning that an agent argument causes a theme/patient argument to be involved in a certain change explicitly specified by the postverbal following the main verb.

In the normal BA-construction, the X, agent is realised as the subject NP₁ and the Y, theme/patient argument is realised as the object NP₂. The Z designating the possible change is realised as the postverbal positioned after the main verb.¹ I use XP to designate various expressions of the postverbal linking Z (see 1).



The object NP₂ as illustrated in 1 above is preceded by the character BA. This BA is treated differently in different literature (Sybesma 1992). Some take it as an auxiliary verb (Wang 1943), some take it as a pre-verb (Chao 1968) and others treat it as a co-verb (Han, 2013). Yet, I have observed that the BA cannot function alone to fill the predicator slot. It cannot be followed by an aspect marker, such as *LE* (completive aspect marker), *ZHE* (progressive aspect marker) and *GUO* (experiential aspect marker). Nor can it be repeated. However, it must be followed by the object NP₂, which is grammatically positioned before the predicator verb. In this sense, the BA in BA-construction always marks the object NP₂ preceding the main verb. The preceeded BA-marked object as illustrated in 1 above helps designating the SOV word order (Li and Thompson 1976; Chao 1968).

¹ The postverbal used in this thesis includes prepositional phrase, noun phrase, verb phrase and so on. The detailed discussed will be carried out in Chapters 8 and 9.

I have found that the Z-XP formalised in 1 above have complicated links. Both the semantic slot Z and the syntactic slot XP have rich variants. However, various Z's all designate the goal of the involved change, while the postverbal XP linked with various Z's can be a verb phrase, a prepositional phrase, a noun phrase, and so on. The most frequent postverbal is the phrase consisting of a direction word (including postverb and preposition) followed by a noun phrase, such as *zai zhuo-shang* (on the table). All the variants of XP will be discussed in detail in Chapters Eight and Nine.

The fillers of the predicator-slot of the BA-construction can be a mono-syllabic verb or a bi-syllabic verb-compound. For the coverage limitation of this thesis, I only discuss the mono-syllabic verbs.

BA-construction is treated as a form-meaning pairing. It has many variants (see the detailed discussion in Chapters Eight and Nine). Before going deeper, I need to clarify that semantically, the X of X-NP₁ can be either agent or cause. The agent is the actor or the causative actor. The action is intentionally initiated and executed by both the actors. No such intentional implication in the BA-construction with cause. For example,

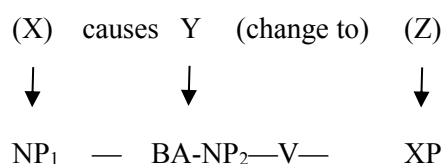
- a. *ta ba wo du-zi da tong le* [Agent]
 He BA my belly hit hurt PAR
 'His hitting cause my belly pain.'

- b. *leng-shui ba wo du-zi he tong le* [Cause]
 Cold water BA my belly drink hurt PAR
 '[Drinking] the cold water makes my belly painful.'

In example a, the agent of the X-NP₁ is the intentional actor, while the cause of the X-NP₁ in example b does not have any intentional implication. It is not reasonable to say that the cold water causes my belly pain on purpose. In such a case, the real cause is that "he drank the cold water". I will return to this discussion in Chapter Six.

Explicit and implicit elements

As illustrated above, Chinese BA-construction can be analysed as a form-meaning pairing.



Some BA-constructions have all the elements explicitly specified. In other words these elements slots are all lexically filled. Yet, other BA-constructions leave some slots unfilled. On the whole, only the Y-NP₂ is obligatory, while others including the predicator-slot are optional. However, I have also observed that if the main verb is omitted, the Z-XP must be explicitly expressed.

2.2 Introduction of causation

Chinese BA-constructions can be studied from a perspective of causation. In this perspective, the BA-construction can be interpreted as a causative construction. It is true that many BA-sentences do designate that someone acts on something and causes it to change. However, there are some exceptions. Thus, it is worthwhile to examine the relevant causative approaches and explore what such approaches can do to Chinese BA-constructions and what they cannot do.

Causative constructions have been discussed within many theoretical frameworks. The related frameworks and their approaches to be discussed in this chapter include the disposal approach (Wang 1954), the transitivity approach (Thompson 1973, 1983; and Hopper and Thompson 1980), the force-dynamics model (Talmy 1988, 2000) and the conceptual semantics approach (Jackendoff 1990, 1993, 2002).

My purpose of this chapter is bi-dimensional. Firstly, I am testing these causation models against various Chinese BA-constructions to see if these theoretical models are adequate. Secondly, I discuss what these causation models can offer to the study of various BA-constructions, and what they cannot do. I also adopt these models to explore as much as possible the internal structures of BA-constructions.

Section 2.3 discusses the disposal view towards BA-construction. Section 2.4 attempts to investigate the advantage and disadvantage of the transitivity approach. Section 2.5 introduces a new concept of fictive causation (cf. Talmy 2000) and discusses the BA-constructions designating such fictive causation. Then, Section 2.6 uses Talmy's force-dynamic patterns to investigate various possible force-dynamic patterns of Chinese BA-constructions. In Section 2.7, these patterns

are further discussed in Jackendoff's two-tier model. Section 2.8 explores the possible sub-event complex.

2.3 Disposal view

Chinese BA-sentences are described by L. Wang (1954) as a disposal construction. Following L. Wang, Tiee (1986:285) defines Chinese BA-construction as a construction brings "attention on how the object is disposed of, dealt with, manipulated or handled by the subject." This view has been developed into various versions with different names. Among them, M.Q. Wang (1987: 72) further suggests that "'disposal' is really a high degree of affectedness of the verb upon the object". Such version of disposal account can be interpreted as a version of causative approach.

The disposal reading of BA-construction can be traced to the character *ba* preceding the main verb of a BA-sentence. The Chinese character *ba* can be categorised either as a noun or as a verb. The noun *ba* denotes handle, such as *dao ba* (knife handle) and *guo ba* (wok handle). It can also function as the main verb. The verb *ba* carries the meaning of hold, handle or control. The verb *ba* in Example 1, for instance, functions as the main predicate verb. The sentence conveys the message that you go and guard the main gate.

- 1 *ni qu ba shou da-men*
 You go control guard big gate
 'Go and guard the main gate'

In the BA-construction, only the remnant meaning of handle or control of verb *ba* can be traced to the BA-marker of a BA-sentence. Example 2, for instance, designates that the teacher hung the painting on the wall.

- 2 *lao-shi ba hua gua zai qiang shang*
 Teacher BA² painting hang at wall up
 'The teacher hung the painting on the wall.'

The teacher is interpreted as having the physical control of the painting and he/she handled the

² BA refers to the BA-marker, indicating the immediate occurrence of the object.

painting by hanging it on the wall.

Although such handling remnant can be understood in many BA-sentences, some other BA-sentences cannot be understood to carry such handle or control sense (see Examples 3 and 4). Example 3 conveys the message that that ray of light lightened the distance place; Example 4 conveys the message that that bottle of liquor made him drunk.

- 3 *na shu guang ba yuan-chu zhao liang le*
That ray light BA distance lighten bright PAR³
'That ray of light lightened the distant place.'
- 4 *na ping jiu ba ta he zui le*
That bottle liquor BA he drink drunken PAR
'That bottle of liquor made him drunk.'

Obviously, in Example 3, *guang* (light) cannot be interpreted as the entity controlling, manipulating or handling the distance. Neither can the *jiu* (liquor) in Example 4 can be interpreted as the entity controlling or handling the drinker. In this sense, handle or control meaning is not appropriate.

Instead of interpreting the marker *BA* as handling or controlling or the *BA*-marked object as the handled or controlled entity, Sybesma (1992) treats the entity preceded by the *BA* marker as an "affected" entity. Such treatment can be found in various versions of transitivity analysis. In the transitivity analysis, the focus of study has been shifted from the *BA*-marker or the *BA*-marked grammatical object onto the semantics of the whole sentence. Similarly, the focus of this thesis is on the *BA*-construction as a whole since many problems can only be properly addressed within the scope of *BA*-construction as a whole. I will further discuss this issue in Chapter Six.

2.4 Transitivity and causativity

In response to Wang's disposal view, some linguists have developed it into a transitivity thesis (Thompson 1973). Y.C. Li (1974) even goes further by claiming that *BA*-sentence conveys the meaning that some particular action is made upon its object. It is true that many Chinese *BA*-sentences carry such causative meaning. The transitive analysis can provide some adequate

³ PAR refers to particle.

description to such causative BA-sentences. However, I have noticed that some other BA-sentences cannot be adequately described within the transitive view. Section 2.4.1 discusses what the transitivity analysis can do to BA-sentences, while Section 2.4.2 points out some remaining problems.

2.4.1 Transitivity analysis

The study of transitivity can be traced back to Thompson's theoretical view concerning transitivity. Thompson (1973) claims that degree of transitivity can be well captured by a list of features, such as telicity (i.e., the action/event presented by the verb phrase is understood as a completed action/event), affectedness and causativity. These three features can even be interrelated in one causative sentence. For example:

5 John smashed the pane into pieces.

In the transitivity analysis, a typical causative sentence is bounded and telic and its object is interpreted as an affected/effected entity. The smashing event illustrated in Example 5, for instance, must be bounded and the smashed entity *pane* must be interpreted as an affected one. Such claim can be well argued for with the evidence provided by Example 6.

6 *John smashed the pane into pieces and the pane was not broken.

Example 6 is semantically odd because the smashed entity cannot be affected and unaffected (or broken and unbroken) at the same time.

It is true that most BA-sentences containing transitive verbs fall into this causative category. Example 7a, for instance, conveys the message that they released the egret; Example 7b carries the meaning that they cleaned the robot.

7a	<i>ta-men</i>	<i>ba</i>	<i>bai-lu</i>	<i>fang</i>	<i>zou</i>	<i>le</i>
	They	BA	egret	release	away	PAR
	'They released the egret.'					

7b *ta-men* *ba* *ji-qi-ren* *ca* *gan-jing* *le*
 They BA robot wipe clean PAR
 ‘They cleaned the robot.’

Both *kan-jian* (see) in 7a and *ca* (wipe) in 7b are transitive verbs and both the sentences are transitive constructions. Both *bai-lu* (egret) in 7a and *ji-qi-ren* (robot) in 7b can be interpreted as affected entities. Thus, 7a and 7b are both transitive and causative BA-constructions.

2.4.2 Remaining problems

The transitivity approach can be applicable to many BA-constructions, but not all. At least three problems remain. Firstly, as discussed previously, the transitivity analysis fails in accounting for the transitive BA-sentences that are not necessarily interpreted as a causative one. Both 8a and 8b are perfect Chinese BA-sentences, but they carry no causation meaning. Example 8a conveys the message that they had a look at the sample. Example 8b conveys the message that they had a look at the room.

8a *ta-men* *ba* *yang-pin* *kan* *le* *yi-bian*,
 They BA sample look ASP⁴ once,
 ‘They had a look over the sample.’

8b *ta-men* *ba* *fang-jian* *kan* *le* *yi-bian*,
 They BA room look ASP once,
 ‘They had a look over the room.’

The *kan* (look) in 8a and 8b is a transitive verb and both the BA-sentences they occur are transitive constructions. In 8a, the BA-marked *yang-pin* (sample) is not acted upon physically by being looked over. Nor is it involved in any change. What is involved in a non-physical change is the people who looked over the *yang-pin* (sample). In 8b, although the BA-marked *fang-jian* (room) is acted upon, no obvious change is explicitly expressed. Therefore, both *yang-pin* ‘sample’ in 8a and *fang-jian* (room) in 8b cannot be interpreted as affected entities. Thus, neither the BA-sentences

⁴ ASP designates the completion aspect marker.

can be classified as a causative construction. These two BA-sentences serve as counterevidence against the claim that all the BA-sentences are causative and all the BA marked entities are understood as affected.

Secondly, the transitivity analysis cannot provide an adequate account for the causative BA-construction with an intransitive verb. I observe that the main predicate verbs of some causative BA-sentences fall into this intransitive category. Both 9a and 9b, for instance, can be interpreted as causative BA-constructions. 9a conveys the message that the fat guy sat on the chair and made it collapse. 9b conveys the message that the children wore out their shoes by walking.

9a *pang-zi* *ba* *yi-zi zuo* *ta* *le*
 Fat person BA chair sit collapse PAR
 ‘The big guy made the chair collapse while sitting on it.’

9b *hai-zi-men* *ba* *xie-zi* *dou* *zou* *po* *le*
 Children BA shoes all walk torn PAR
 ‘The children wore out their shoes by walking.’

Both *zuo* (sit) in 9a and *zou* (walk) 9b are intransitive verbs. However, both the BA-sentences 9a and 9b are causative BA-constructions. 9a can be understood as the over-weight person caused the chair which he sat on to collapse. The causative reading in 9b is that the children caused their shoes torn because of walking. Yet, neither *pang-zi* (fat person) in 9a nor *hai-zi-men* (children) in 9b intended to damage the entities involved in their respective action. Their causative results are explicitly expressed merely by the resultative adjectives/postverb *ta* (collapse) in 9a and *po* (break) in 9b.

Up to this point of discussion, I come to the following conclusion. Firstly, BA-constructions and causative constructions are two related yet distinctive types. A part of BA-constructions is the causative construction, the other part is non-causative. In this sense, the causative feature is one of the features of the BA-construction, but not a necessary one. Secondly, both transitive verb and intransitive verb are licensed in BA-sentences. Within the perspective of the main verb, causativity and transitivity are two features which can be used to cover different types of Chinese BA-constructions, including transitive causative (see 7a and 7b), intransitive causative (see 9a and

9b), and transitive un-causative construction (see 8a and 8b). The relations between transitivity and causativity in BA-constructions are illustrated in Table 2.1.

Table 2.1 Causativity and transitivity

	Causative	non-causative
Transitive verbs	causative BA-construction	non-causative BA-construction
	With transitive verb	with transitive verb
Intransitive verbs	causative BA-construction	non-causative BA-construction
	With intransitive verb	with intransitive verb

Last but not least, the transitivity analysis fails to account for different choices of the object. Many causative BA-constructions with transitive verbs can be accounted for, in a traditional transitive analysis, as the event, that subject acts upon and affects the object. However, such an account soon becomes inadequate in the analysis of even causative BA-constructions. One of the reasons is that the Chinese BA-constructions can select different elements as the grammatical object. Both 10a and 10b below, for example, contain the same verb *tian* (fill). The verb *tian* (fill) can be understood to denote the meaning that actor A moves some O(bject) to some L(ocation). Yet, in 10a the O is selected as the object, while in 10b the L is chosen as the object. The transitivity analysis finds it difficult to offer an adequate account of these variants. Example 10a conveys the message that someone filled the number into the parenthesis; Example 10b conveys the message that someone filled all the blanks.

- 10a *ba xu-hao tian zai kuo-hao li*
 BA number fill at parenthesis inside
 ‘[Someone] filled the number into the parenthesis.’
- 10b *ba suo-you-de kong-ge dou tian man*
 BA all blank all fill full
 ‘[Someone] filled all the blanks.’

If we stick to the definition that the object is the entity which is acted upon and involved in a

process of change, then both O and L have to be taken as the acted-upon entities. However, it is odd to take L as the entity that the subject acts upon in filling event.

These variants of the object in the BA-construction left unexplained. This is because the rich semantic patterns of causation, which are of importance to the cognitive study of construction, are unfortunately neglected.

2.5 Fictive causation

In order to explore the rich semantic patterns in BA-constructions, I borrow the concept of factive motion and fictive motion from Talmy (2000). The term “fictive” is found to be used in Talmy’s discussion of the conceptualisation of motion. In the exploration of fictive motion, Talmy (2000: 104) argues that “Most observers can agree that languages systematically and extensively refer to stationary circumstances with forms and constructions whose basic reference is to motion.” According to his view, there are two types of motion. One is factive and the other is fictive. The factive motion refers to a segment of meaning expressed by the construction truthfully reflects the corresponding reality. The fictive motion refers to a stationary circumstance in reality as a motion. Example 11a, for instance, designates a motion, while Example 11b designates a stationary circumstance.

11a The dog ran from the peak down to the valley. (factive motion)

11b The fence ran from the peak down to the valley. (fictive motion)

In the real world, a dog can run but a fence cannot. The factive motion is the conceptualisation of the physical motion, while the fictive motion is the conceptualisation of the stationary circumstance. In other words, the encyclopaedic knowledge of real motion can be construed as a motion construction and such construal is said to be a factive motion construction. The encyclopaedic knowledge of the real stationary circumstance can also be construed as a motion construction and such construal is known as a fictive motion construction. If the encyclopaedic knowledge is labelled as K and the construction is labelled as C, then the factive motion and the fictive motion can be formalised as follows.

Factive motion: Motion of K is construed as motion C.

Fictive motion: State of K is construed as motion C.

These two formalised patterns, as I contend, can also be applied to causation and I define the factive causation and the fictive causation as follows.

Factive causation: Causation of K is construed as causative C.

Fictive causation: Non-causation of K is construed as causative C.

The factive-fictive causation contrast can be applicable to BA-constructions. Both 12a and 12b, for example, contain the meaning that the sky became bright. Example 12a conveys the message that the searchlight lit up the sky. Example 12b conveys the message that the day broke while the birds were singing.

12a *tan-zhao-deng ba tian dou zhao liang le* (factive)

Search light BA sky even light-up bright PAR

‘The searchlight lit up the sky.’

12b *xiao-niao ba tian dou chang liang le* (fictive)

Birds BA sky even sing bright PAR

‘The day broke, while the birds were singing.’

12a is a BA-construction of factive causation. It was the searchlight that lit up the sky. 12b is a BA-construction of fictive causation. The singing of the bird did not light up the sky. The birds’ singing and the daybreak happen simultaneously. Although the singing event cannot light up the sky, the non-causative event is construed as one. Such a pseudo-causation is known as fictive causation.

With this new notion of fictive causation in hand, I can better account for causation in psychological domain. Comparing factive and fictive causative BA-constructions illustrated in 13a and 13b. Both the BA-sentences convey the message that they mistook the address. In 13a, they wrote a wrong address; in 13b, they misread it.

13a *ta-men ba di-zhi xie cuo le*
 They BA address write wrong PAR
 ‘They wrote a wrong address.’

13b *ta-men ba di-zhi kan cuo le*
 They BA address see wrong PAR
 ‘They misread the address.’

In the sentence exemplified in 13a, the address is no longer the right one as the result of their writing. In 13b, the physically right address remains unchanged in the whole process of reading. However, it is the readers who mistook the address. In other words, the address in the readers’ mind went wrong. Thus, The address in 13a is “factively” wrong, while the address in 13b is merely “fictively” wrong.

Furthermore, the fictive causation serves as evidence against the claim made in the transitivity analysis that the BA-marked object is realised an affected entity. The fictive causation illustrated in 13b, for instance, shows that its grammatical object *di-zhi* (address) cannot be interpreted as an affected entity. The fictive causation also indicates the existing discrepancy between the encyclopaedic knowledge and the linguistic semantics of the construal. I will come back to further discuss and formalise this discrepancy in Chapter Six.

2.6 Force-dynamic patterns and causation

As discussed in the previous section, the transitivity analysis of BA-constructions can help account for some types of BA-sentences. However, such transitivity descriptions are too narrow to be adequate for many other Chinese causative BA-constructions. The BA-marked grammatical object, in some cases, can be understood as the acted-upon and affected object; while in other cases, it cannot. Then the question arises. Which argument roles are allowed to be taken as the grammatical object? Why?

In comparison with the transitivity analysis for BA-construction, Talmy’s (2000) force-dynamics theory provides a more adequate account. Furthermore, the force-dynamics theory captures much detailed semantic patterns in language structure. I will discuss in Section 2.6.1 the

advantage of such theory. I also contend in Section 2.6.2 that although force-dynamics theory demonstrates its strong descriptive power for BA-construction analysis, some problems still remain unsolved.

2.6.1 Force-dynamics theory

Talmy's (1988, 2000) force-dynamics theory offers a much broader and more appropriate account for causation. In the case of Chinese BA-constructions, Talmy's force-dynamics theory has two obvious advantages. It provides a general description of the possible causation and it offers the ways that the cognitive semantic patterns can shape language structures. Force-dynamics theory studies "how entities interact with respect to force" (Talmy 2000: 409). The interaction refers to the exertion of force by an entity and the resistance to or strengthening of the force by another. In describing the interaction between forces, Talmy takes the focal force as the agonist (Ago) and the opposite one as the antagonist (Ant). He believes that the interaction between agonist and antagonist is applicable to physical domain, social domain and psychological domain. In this thesis, I apply the force-dynamic patterns to causative BA-constructions.

Talmy builds up the force-dynamic schema to present the four basic patterns of the causative (see Figure 2.1).

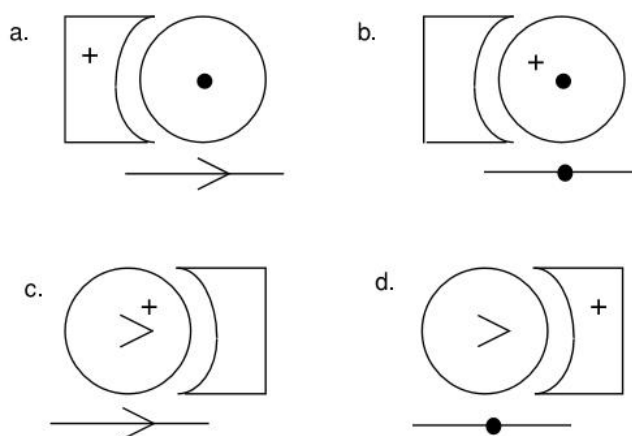


Figure 2.1 Basic patterns of force dynamics (Talmy 2000: 415)

In Talmy's formal diagram (see Figure 2.1), the circle designates the agonist, and the concave figure beside it designates the antagonist. The antagonist exerts force to the agonist by either impinging on it or hindering it. To represent the former type of antagonist, the concave figure is

positioned on left side of the agonist (see Figure 2.1a and 2.1b); while for the latter type of antagonist, the concave figure is positioned on the right side of the agonist (see Figure 2.1c and 2.1d). The cross in either the circle or the concave represents the stronger force of that designated agonist or antagonist. The dot and arrow in the circle, thus, denote the static tendency and the moving tendency of the agonist respectively. The dot and arrow on the lines below denote two types of the resultants of the agonist respectively. The agonist in Figure 2.1c, for instance, is a stronger force and its stronger force helps keep its own tendency of change as a result.

With these basic features, the four very basic force-dynamic patterns can be well characterised. Both Figure 2.1a and 2.1b describe the current resting state of the agonist (represented by the dot in the agonist circles). Yet, they have different forces. In Figure 2.1a, the antagonist has a stronger force (represented by the cross in the concave figure), and it makes the agonist to change from the rest state towards the motion state as a result (represented by the arrow on the line below). Figure 2.1b demonstrates that the agonist has the stronger force than that from antagonist, therefore, the agonist keeps the stationary tendency. As a result, it remains in a stationary state. The agonists in the Figure 2.1c and 2.1d have the same current motion state (designated by the arrow in the agonist circles). Since the agonist in 2.1c is stronger, it keeps on its own motion tendency. In the Figure 2.1d the antagonist is stronger (see the cross in the concave figure). The stronger antagonist makes the agonist change in state. As a result, the agonist is caused to be in the rest state.

In the corpus, I have discovered that many causative BA-constructions are the ones whose antagonist can be interpreted to have a stronger force than its agonist. In such BA-constructions, the current state of the agonist can be changed because a stronger antagonist acts upon it. That is, the force of the antagonist can be of an impinging type or a blocking type. In other words, the agonist tends towards either rest state or motion state. Such semantic difference cannot be accounted for in the transitivity analysis. 14a, for instance, conveys the message that someone filled the table with the data. 14b conveys the message that someone locked the pigeon in the cage and prevented it from flying away.

14a *ba san-ci shi-yan shu-ju dou tian zai biao-ge li*
 BA three experiment data all fill in form inside
 ‘[Someone] filled the table with the data yielded in the three experiments.’

14b *ba ge-zi guan zai long-zi li*
 BA pigeon lock in cage inside
 '[Someone] locked the pigeon up in the cage.'

Such causative BA-constructions can be accounted for by Figures 2.2a and 2.2b.

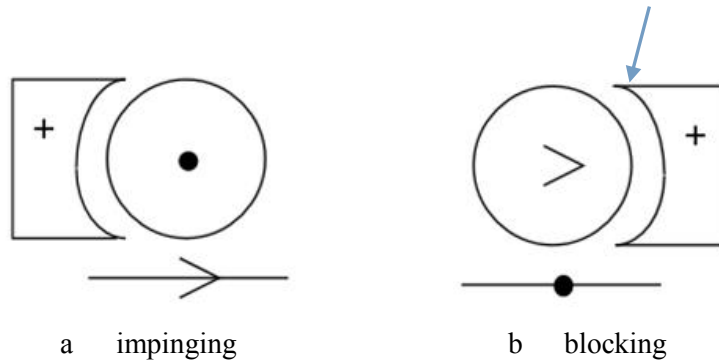


Figure 2.2 Force-dynamic patterns of BA-constructions

Although the tendency of the agonist and its result are different in most causative BA-sentences, I found that it is also possible that with a stronger antagonist, the current state, tendency and the result of the agonist can all be the same. The tendency of both the agonists in 15a and 15b is towards motion or change. Example 15a conveys the message that they walked down from the boat and someone helped them to do so. The help makes it easy for them to walk down from the boat. In this sense, both the motion tendency and the resultative state of the agonist is the same (see Figure 2.3a). Example 15b conveys the message that pigeon tended to fly away with the block removed. In this sense, both the moving tendency and the resultative state of the agonist *ge-zi* (pigeon) are the same (see Figure 2.3b).

15a *ba ta-men yi-ge-ge fu xia chuan qu*
 BA they one-by-one help down boat go
 '[Someone] helped them get off the boat one by one.'

15b *ba ge-zi fang zou le*
 BA pigeon release away PAR
 '[Someone] released the pigeon.'

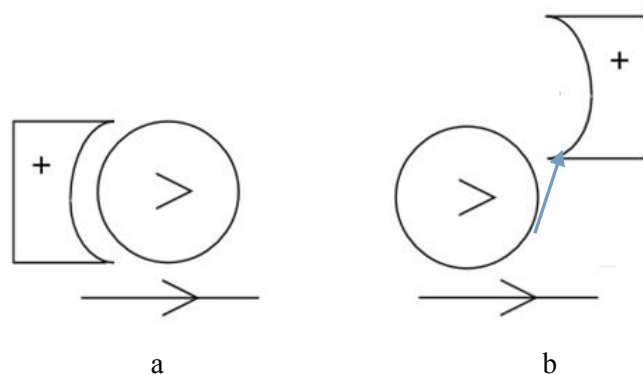


Figure 2.3 Force-dynamics patterns of causative BA-constructions

The agonist can be interpreted not merely as being caused to change, but also as being assisted to facilitate its action (see Figure 2.3a and Example 15a). The agonist in a BA-sentence can also be interpreted as regaining freedom of action with the block being removed (see Figure 2.3b and Example 15b). Such causative meaning cannot be accurately captured in the transitivity analysis.

The force in force-dynamics theory is understood not merely as the physical force, but also as the “psychological pressures” (Talmy 2000: 409). That is, force-dynamic patterns can also be metaphorically extended to psychological domains. The force in such cases can be understood as a “psychological pressure”. Such mental causatives can also be construed as causative BA-constructions. Example 16a, for instance, conveys the message that they frightened the child into tears. Example 16b conveys the message that mother teased her child into laughter.

16a *ta-men ba hai-zi xia ku le*
 They BA child frighten cry PAR
 ‘They frightened the child into tears.’

16b *ma-ma ba hai-zi dou le le*
 Mother BA child tease laugh PAR
 ‘Mother teased her child into laughter.’

In 16a, the agonist *hai-zi* (kid) changed its tendency and started crying under the mental pressure exerted on it. In 16b, the agonist *hai-zi* (kid) became joyful under the mental pressure or the

stimulation from its mother.

Although force-dynamic patterns offer some help to the investigation of the relations between the force-dynamic patterns and the verbs which can occur in them, such as *fu* (assist) (see Example 15a) and *fang* (release) (see Example 15b), the force-dynamics theory is not ready yet to explain extensively the co-occurring relations between verbs and force-dynamic patterns. Nor is the theory ready to account for why the antagonist can co-occur with intransitive verbs, as many Chinese BA-constructions can.

2.6.2 Choice of the focal force

In the force-dynamics analysis, the agonist, which is chosen as the focus of attention in a causative construction, is linked to the grammatical object. In the case of Chinese BA-construction, the focal agonist is linked with the BA-marked grammatical object. The choice of the agonist is not much of a problem in English since only the acted element (i.e., the element which is acted upon) is taken as the agonist. However, the choice of the agonist in the Chinese BA-sentences are much more complicated.

The digging event, for instance, consists of at least three elements: digger, digged and instrument. In most cases, the digged is chosen as the focal force (agonist) and realised as grammatical object in causative BA-constructions (see 17a). However, I also notice that there exist some BA-constructions with the predicator verb *wa* (dig), whose grammatical object is other than the digged (see 17b-e). All the five BA-constructions (17a-e) down below convey the message that while the grave robber was digging with an iron spade and something happened.

17a *tao-mu-zei* *ba* *tu* *wa zou* *le*
Steal tomb thief BA earth dig away PAR
'The grave robber dug away the earth.'

17b *tao-mu-zei* *ba* *wen-wu* *wa chu-lai* *le*
Steal tomb thief BA relics dig out come PAR
'The grave robber dug out the relics.' (outcome)

17c *dao-mu-zei* *ba* *tie* *qiu* *wa duan* *le*
 Steal tomb thief BA metal spade dig broken PAR
 ‘The grave robber broke the spade in digging.’ (instrument)

17d *dao-mu-zei* *ba* *shou* *wa qi* *le* *pao*
 Steal tomb thief BA hand dig up ASP blister
 ‘The grave robber dug to the extent that his hands had blisters.’
 (active zone of digger)

17e *dao-mu-zei* *ba* *jing-cha* *dou* *wa lai* *le*
 Steal tomb BA cops even dig come PAR
 ‘The grave robber dug and made cops come.’ (extended element)

Yet, these five BA-sentences have different agonists and different grammatical objects. That is, the affected entity in the digging event differs in the four BA-constructions. The agonist in 17a is the only digged, *tu* (earth). The agonist in 17b is the *wen-wu* (relics) that the digger was looking for. It is acknowledged that in the digging event, the tool has the direct contact with the earth constantly, instead of the entity which is looked for. When the diggers see the entity, the digging action may stop, the digging may need another tool, or the digging is carrying on carefully without damaging the entity. The agonist in 17c is the instrument *tie-qiu* (iron spade); the agonist in 17d is the active zone of the digger *shou* (hands). It is worth pointing out that even the element *jing-cha* (cops) extended from the digging event can also be treated as the agonist (see 17e). In English, only the digged and the entity that the digger is looking for is possible to be taken as the agonist and realised as the grammatical object. For example:

18 The robber dug out the bronze. (digged)

Force-dynamics theory studies “how entities interact with respect to force” (Talmy 2000: 409). Different languages can have different choices of focal agonist and grammatical object. Chinese, for instance, is such a language that any entities of an event involved in interactions can be treated as focal agonist; while English is highly constrained. To account for various choices of focal

agonist, I propose a more general principle, which I call **Agonist Selection Principle**. This selection principle states that

All the possible entities, including the extended one, of an event are involved in some interaction and any of them has the potential of being chosen as the agonist. However, the actual selection is determined by particular language.

An important issue to be pointed out is that entities involved in an interaction are said to be those within the same event, such as the digging event we have discussed previously. To adequately account for various choices of focal agonist, the theory has to identify the possible scope of event which is able to include all the possible interacted entities which are chosen as the focal agonist (see Chapter Six).

Although any entity involved in an event can have the potential of being changed, there is some hierarchy for the grammatical object which links the entity. Possible scale of such hierarchy can be established and it is even rather universal. The object hierarchy, for instance, can be illustrated as acted > location > actor. All these entities in Chinese can be realised as grammatical object, yet the acted entity is more likely to be treated as grammatical object than actor. In English, the grammatical object scale can never be extended to include actor.

Even if we accept the extended definition of force-dynamics, we still have to delimit the possible scope of event in which all the possible elements are involved in an interaction. We also have to argue for the possible BA-marked object selected from the interacted elements. I further discuss the first issue in Chapter Six and Chapter Seven and the second issue in Chapter Nine.

2.7 Two-tier approach

Following Talmy's force-dynamic schema, Jackendoff (1987, 1990, 1993, 2002) proposes a two-tier analysis in his parallel model. Similar to Talmy, Jackendoff argues that a typical causation is analysed as a force-dynamic pattern in which the antagonist acts so as to change or occasionally keep the agonist's inherent tendency.

Unlike Talmy, Jackendoff's model is compositional. The two-tier model consists of the action tier and the thematic tier. Jackendoff (1990) demonstrates that his two-tier formalisation can well account for varieties of force-dynamic causation. Following the suggestions made by

Culicover and Wilkings (1986) and Talmy (1985), Jackendoff (1990) describes causatives at both action tier and thematic tier. The action tier deals with the Actor-Patient affecting relation and the thematic tier accounts for motion and location. For example:

19a John threw the ball into the basket.

The caused-motion construction illustrated in 19a is analysed at two tiers (see 19b).

19b CAUSE ([CAUSE_{JOHN}], [GO ([THEME_{BALL}], [GOAL_{INTO (BASKET)}]]) [thematic tier]
 AFF ([ACTOR_{JOHN}], [PATIENT_{BALL}]) [action tier]

The thematic structure in this particular example represents a causative structure. By following Jackendoff, the CAUSE event is decomposed into the cause *John* and the GO sub-event. The GO sub-event is composed of the theme, *ball* and the goal *into the basket*. The action structure is composed of actor and patient.

2.7.1 Advantage of binding patterns

The two-tier mechanism provides some convenience in describing BA-constructions. In analysing conceptual semantics of causative constructions, Jackendoff (1990) focuses his attention on the three aspects discussed in Talmy's force-dynamic patterns. They are types of tendency, types of causative direction and types of outcome interpretations. On top of these three aspects, Jackendoff also introduces the binding mechanism. This binding mechanism, I contend, has the leeway to cover more varieties of causative BA-constructions.

In Jackendoff's analysis, participant roles at thematic tier and those at action tier are independent of each other. Simultaneously, cross-tier relations exist. The BA-sentence 20a, for instance, denotes that *Cai, San-bao* executed a putting action on the car and caused the car to be relocated under the eaves.

20a *Cai-san-bao ba che-zi fangzai wu-yan xia*
 Cai, San-bao BA car put at eaves down
 'Cai, San-bao parked the car under the eaves.'

The conceptual structure of 20a is formally represented at the two tiers with cross-tier binding mechanism represented in 20b.

20b CAUSE ([CAUSE_{Cai, San-bao}], [GO ([THEME_{car}], [GOAL_{under (eaves)}]])] [thematic tier]
 AFF ([ACTOR_{Cai, San-bao}], [PATIENT_{car}]) [action tier]

At the thematic tier, the cause event is decomposed into the cause *Cai San-bao* and the go sub-event, which contains the theme *che* (car) and the goal *wu-yan xia* (under the eaves). The action tier is simply represented as an AFF event, which contains the actor *Cai San-bao* and the patient *che-zi* (car) (see 20b). The cause and the actor *Cai, San-bao* are bound; the theme and the patient *che-zi* (car) are also bound.

As it has been stated, the force-dynamic patterns figure language structures. I have noticed that the grammatical subject in BA-sentences is normally linked with the antagonist of the force-dynamic patterns. Such realisation has not been discussed in detail within the force-dynamics framework. I have also noticed that in most English causative constructions, the actor or causer is taken as the antagonist and the acted or causee is taken as the agonist. The Chinese BA-sentences also demonstrate such tendency.

However, the grammatical subject in BA-construction has the rich semantic load. Except for the acted-object realisation (see 21a), the actor-object realisation is also possible (see 21b). Both 21a and 21b, for example, share the same meaning that he drank that pot of wine. Example 21a conveys the message that he finished all the wine. 21b conveys the message that the pot of wine he drank made him intoxicated.

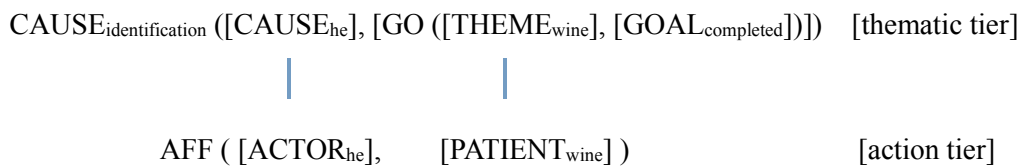
21a *ta ba na hu jiu he wan le*
 He BA that bottle wine drink finished PAR
 ‘He drank up that bottle of wine.’

21b *na hu jiu ba ta he zui le*
 That bottle wine BA he drink drunk PAR
 ‘He was drunk after having that bottle of wine.’

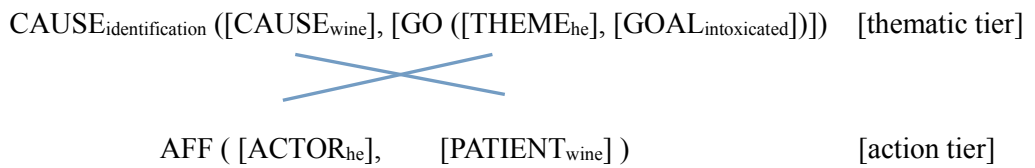
Both the actor and the acted of the same event (the drinking event in this case) can be taken as the focal agonist, whose resultative state (or outcome) can be explicitly expressed.

The two exemplified BA-sentences have revealed an important discovery. In English, causative constructions disallow actor as agonist. However, such realisation constraint is not observed in some Chinese BA-constructions. In Chinese BA-constructions both the actor (see 21a) and the acted (see 21b) can be chosen as the agonist and be realised as the grammatical object. Both can be well captured by the two-tier model (see 22a and 22b).

22a



22b



The two tiers of the conceptual structures (see 22a and 22b) of the two BA-sentences (see 21a and 21b) are the same. The obvious difference between these two examples can be accurately captured by their distinct binding patterns. In Example 21a, the patient *jiu* (wine) is bound with the theme and the actor *ta* (he) is bound with the cause. In 21b, the patient *jiu* (wine) is bound with the cause and the actor *ta* (he) is bound with the theme. The latter binding pattern is disallowed in English.

The binding patterns in two-tier account offer the clearer representations of samenesses and differences of various causative BA-constructions than Talmy's force-dynamic pattern. Examples 21a and 21b, for instance, carry the same action structure as well as the same thematic structure. Their differences can be nicely captured through the different binding patterns (see 22a and 22b). The binding patterns as illustrated in both 22a and 22b account not only for different subjects but also for different objects. This descriptive mechanism not only captures all the possible grammatical realisations but also formalises the description in a more economic manner.

2.7.2 A remaining problem

Although the two-tier model provides a clearer descriptions of various realisation patterns, it is not true that the two-tier formalisation can capture all the possible grammatical realisations. In the following discussion, I point out that such theoretical mechanism has its own limit. The Chinese BA-sentences, as I discussed in Section 2.5.2, have rich various realisations of objects. For example, in the writing event, the written words, the pen, the writer, and so on are interacting with each other. In Chinese BA-constructions, these three elements can all be realised as their respective grammatical object (see 23a-c). All the three examples in 23 share the meaning that in the process of writing, the writer affected something else, however, they differ in the realisation of grammatical object.

23a *ta ba zi xie cuo le*
 He BA character write wrong PAR
 ‘He wrote the character wrongly.’

23b *ta ba bi xie duan le*
 He BA pen write broken PAR
 ‘He broke the pen during writing.’

23c *ta ba shou xie suan le*
 He BA hand write sour PAR
 ‘He wrote to the extent that his hand was painful.’

The shared meaning in the three BA-sentences can be formally represented in the two-tier model as illustrated in 24.

24
 CAUSE_{identification} ([CAUSE_{he}], [GO ([THEME_y], [GOAL_z]])) [thematic tier]
 AFF_{write} ([ACTOR_{he}], [PATIENT_{character}]) [action tier]

In the two-tier framework, all the three BA-sentences (see 23a-c) have the same thematic structure

and the same action structure (see 24a). The only differences among the three are the lexemes for the theme slot and the goal slot. The theme slot is filled by *zi* (character) in 23a, by *bi* (pen) in 23b and by *shou* (hand) in 23c. The goal slot is filled by *cuo* (wrong) in 23a, by *duan* (broken) in 23b and by *suan* (painful) in 23c. Since the instrument *bi* (pen) in 23b and the active zone of the actor's *shou* (hand) in 23c cannot be represented in the action structure (see 24), no binding is possible to be established. As a result, 23b and 23c remain unexplained.

Thus, Jackendoff's two-tier formalism still needs to be revised to solve the problem concerning the varieties of the grammatical object. I will solve this problem with a newly-built Cognitive Event Frames, which I will discuss in Chapter Six.

2.8 Sub-event complex

In Jackendoff's decompositional analysis, causative constructions are analysed as the combination of action conceptual structure and thematic conceptual structure. Most illustrating examples discussed previously demonstrated the direct binding patterns of the two conceptual structures. However, I have noticed such simple binding patterns fail in adequately accounting for some other BA-constructions due to the fact that BA-construction may consist of two or more than two sub-events. Example 25a down below, for instance, conveys the message that grandpa was eating the wild herbs and his face swelled as a result.

25a *chi ye-cai* *ba* *ye-ye-de* *lian dou* *chi zhong* *le*
 Eat wild herbs BA grandpa face even eat swell PAR
 'Eating the wild herbs even made grandpa's face swell.'

This BA-sentence consists at least of two sub-events – i.e. (1) grandpa ate wild herbs and (2) grandpa's face swelled. These two sub-events are causally related. The eating sub-event functions as the cause; while the swelling sub-event functions as the result. If Jackendoff's two-tier model is applied to this case, the possible two conceptual structures are described as 25b.

25b
 CAUSE_{identification} ([CAUSE_?], [GO ([THEME_{face}], [GOAL_{swollen}]])] [thematic tier]
 AFF_{eat} ([ACTOR_{grandpa}], [PATIENT_{wild herbs}]) [action tier]

As 25b indicates, no concept of the action structure is bound with any concept of the thematic structure, although the cause sub-event and the result sub-event are related to form a coherent causative BA-construction. Thus, we still need an additional mechanism to explain the coherence between the action and the causation.

Such need for an additional mechanism is more urgent for the BA-construction illustrated in 26. This BA-sentence conveys the message that sleeping on the bed made [the sleeper] listless.

26a *chuang hui ba shen-zi shui ruan* (CCL)
 Bed able BA body sleep soft
 ‘Sleeping on the bed made [you] listless.’

Example 26a consists also of two sub-events – i.e. the sleeping sub-event and the causative result sub-event. Both are combined to form the meaning of the BA-sentence.

If the two-tier analysis is applied to 26a, the possible two conceptual structures are formalised in 26b.

26b
 CAUSE_{identification} ([CAUSE_?], [GO ([THEME_{body}], [GOAL_{listless}]]) [thematic tier]
 AFF_{sleep} ([ACTOR₀],) [action tier]

The cause in the thematic tier cannot be associated with one entity. Besides, the sleeping action structure contains no overt concept (see 26b). Again, no binding relation is possible, yet the BA-sentence is still acceptable.

Some Chinese BA-sentences consist of even more than two sub-events in their conceptualisation. Such BA-sentences are rare, yet possible. BA-sentence 27, for example, conveys the message that they wore out their shoes because of kicking.

27 *ta-men ba xie-zi ti po le*
 They BA shoes kick broken PAR
 ‘They tore their shoes in kicking.’

Example 27 contains three sub-events—i.e., (1) they wore the shoes, (2) they were kicking something, and (3) they wore out the shoes. These three sub-events are very difficult to be squeezed adequately into the two-tier formalisation either.

2.9 Discussion and summary

The Chinese BA-construction has been discussed under many names. This chapter has examined these approaches. Many of them are interested in the affectedness reading of the BA-construction. Such as the disposal view, transitivity analysis and causative construction. I have noticed in my data that many BA-constructions are of the causative type and their BA-marked grammatical objects are associated with an affected entity. In other words, many causative BA-constructions require the affected grammatical objects.

However, I have also observed that some transitive BA-constructions allow the intransitive verbs. The transitivity analysis cannot offer an adequate account of such BA-constructions. The data also has shown that the BA-marked objects in some BA-constructions cannot be understood as affected. Besides, the causation of causative BA-constructions, as I argued with evidence, has both factive type and fictive type. The fictive causation is not a concern in the transitivity analysis.

There are two reasons that the transitivity analysis fails in accounting for such BA-marked object. Firstly, since the transitivity analysis does not pay enough attention to the rich semantics of the grammatical object of the causative BA-constructions. Secondly, transitivity approaches are unable to offer the well-defined criteria for the affected entity.

The reason that these BA-constructions are left to be unexplained is that the BA-construction has many variants. The grammatical object, for instance, is able to link with actor, acted, instrument and even other extended elements. No such variants are found in English.

In comparison with the transitivity analysis, Talmy's (2000) force-dynamics model and Jackendoff's (1987, 1990) two-tier model give a more detailed semantic description of the causation. Besides, their accounts offer a much wider coverage of causation and are more general. Both the approaches discuss the affected grammatical object with its causative result. They even uncovered various possible force-dynamic patterns containing various co-occurring relations between the tendency of the object and its causative result.

Talmy's (2000) force-dynamic model is applicable to more BA-constructions. I have argued that the notion "fictive" can also be applied to causation. The notion of fictive causation offers a

general and adequate account of many other BA-constructions, especially the BA-constructions of the psychological domain.

Based on Talmy's force-dynamics theory, Jackendoff (1987, 1990) establishes a two-tier model to account for conceptual structures of causation. With the action structure and the thematic structure separated and interconnected through binding patterns, I have found, many BA-constructions containing various transitive and intransitive classes of verbs can be well accounted for. The possible binding patterns between the action structure and the thematic structure offer a leeway to account for more BA-constructions. That is, the force-dynamic patterns, together with the binding patterns has wider coverage.

Powerful as both the force-dynamic patterns and the binding patterns are, their approaches cannot cover all the BA-constructions. There are still remaining problems. In this chapter, I uncovered and discussed four such problems. Firstly, some BA-constructions are associated with a complex of several related sub-events. Such BA-constructions require richer background knowledge involved to account for the sub-event complex. Secondly, the scope of the entities involved in force interaction should be enlarged so as to account for more variants of Chinese BA-constructions. That is, a richer scope of relevant background knowledge is to be provided. Thirdly, it is certain that the action-theme structure by Jackendoff is not powerful enough to capture the conceptual structures of all the possible BA-constructions. Fourthly, there exist some discrepancy between the encyclopaedic knowledge served to understand the sentence and the linguistic semantics of the sentence. Therefore, the more detailed discussion of the sameness and difference between the cognitive encyclopaedic knowledge and the linguistic semantics is required. I will discuss these issues both in Chapter Four and Chapter Six.

3 Methodology- Data and Collostructional Analysis

3.1 Corpus

This thesis focuses more on the theoretical pole. The statistic analysis aims to support my set-up of the new model Cognitive Event Frame (CEF, see Chapter Six). The data for my analysis is mainly collected from the online contemporary Chinese corpus, CNC (Balanced National Corpus of Modern Chinese).¹ CNC contains 9,487 texts, and 151,300 characters (<http://corpus.zhonghuayuwen.org/index.aspx>).

The source of the corpus

There are three stages of data collection for CNC. Firstly, the data generated before 1993 were collected manually. They are mainly in the written form (around 70 million). Secondly, the data generated from 1993 to 2002 were collected manually. They are mainly in the writing form (around 15 million words). Thirdly, the data generated after 2002 were mainly from internet (around 10 million words). All these information can be downloaded from the website (<http://corpus.zhonghuayuwen.org/resources/CorpusIntroduction2012.pdf>).

Genre of the corpus

Three kinds of general genre are identified in the corpus, including humanities and social science (i.e., data associated with politics, law, history, society, economy, literature, art, and etc), science (i.e., agriculture, industry, medicine, electronic, engineering and etc.), and others. The humanities and social science genre accounts for about 50 % of the corpus; science, 30 %; and others, 20%. All these information can be allocated on the CNC website (<http://corpus.zhonghuayuwen.org/resources/CorpusIntroduction2012.pdf>).

Tagging

CNC has its own grammatical tagging tool which can tell the category of the words. It tags the BA-marker as preposition. Although there is a big problem of classifying the BA-marker as the preposition (The classification of BA is discussed in the section 2.1 in

¹ The address of CNC: www.cncorpus.org

Chapter 2.), it is useful to extract the BA-constructions from the corpus.

Data collection for the thesis

Following the tagging system of CNC, I used the search engine in the database, input the formula ‘ba/p’ (p designates preposition) and yielded 31,364 samples. However, I found the tagging system treats the quantifier BA as a preposition as well. Obviously, the quantifier BA should be eliminated. I then manually crossed off the samples which do not belong to the BA-constructions. Therefore, the total number of BA-constructions obtained is 30,361. Each BA-construction has only one BA-marker.

The exemplified sentences used in the thesis are mostly extracted from CNC, supplemented with some BA-sentences taken from CCL² (Center for Chinese Linguistics) corpus, TV talk shows, TV interviews, TV news and some other conversations. The data for the statistical analyses are extracted only from the CNC.

Problems of the corpus

Some problems in the corpus limit the thesis. Firstly, the automatic tagging system is immature. It fails in, at least, distinguishing the BA-marker and the quantifier BA. Secondly, the corpus only contains the written language, instead of spoken language. In the spoken language the verbless BA-construction may enjoy a bigger frequency. This may lead to the result that the frequency of the verbless BA is rather small (54), compared with the overall frequency of the BA-construction (30,361, see Chapter Eight). In this sense, the CNC, to some extent, sets the limitation to the interpretation of the BA-construction.

Data classification

I classify all the BA-samples collected from CNC by semantics and syntax. I focus my discussion in this thesis mainly on the semantic pole. I have found three major types of constructional meaning – i.e. caused-motion, resultative and caused-transfer. The BA-constructions with the same verb may fall into one or more of these different sub-types of BA-construction. I have also found that the postverb or preposition of the BA-construction is

² The address for CCL: http://ccl.pku.edu.cn:8080/ccl_corpus/index.jsp?dir=gudai

semantically compatible with the BA-construction with which it co-occurs (see the detailed discussion in Chapter Nine). In these cases, the postverb or the preposition is usually followed by a noun phrase. The preposition *zai* (at/in/on), for instance, usually co-occurs with the caused-motion BA-construction, suggesting the final goal; the postverb *cheng* (becoming) usually appears with the resultative BA-construction, suggesting the explicit resultative state; the postverb *gei* (giving to somebody) usually co-occurs with the caused-transfer BA-construction, having the reading that something is transferred. Based on these observations, BA-constructions will be classified with the help of the postverbs and preposition. In Chapter Eight, I will address the classification in detail.

3.2 Methods for collocation analysis

The collocation analysis is designed for calculating the attractedness between the lexicons of the same construction or between the lexicon and the construction in which the lexicon occurs. The collocation analysis is expected to offer a better account for these usage distributions than the type frequency analysis since the collocation analysis takes into the consideration the size of the corpus as well as other constructions in the corpus.

In order to conduct the collocation analysis, I input the statistics (token frequency) to run the R software³, which is available online. There are three types of collocation analysis for three different purposes. They include the collexeme analysis, the distinctive collexeme analysis and the covarying analysis (Stefanowitsch and Gries 2003). Gries has kindly offered the detailed procedure and the input data required for the analyses online (<http://www.linguistics.ucsb.edu/faculty/stgries/teaching/groningen/index.html>).

Collexeme collocation analysis

Firstly, the collexeme analysis (Stefanowitsch and Gries 2003) is designed to account for the attractedness between a lexical item and a specific construction where the lexical item occurs, such as the attractedness between the verb *fang* (put) and the BA-construction in which the verb occurs (see Section 9.3). To run the collexeme analysis in R software, the needed statistics are listed as follows:

³ The R software is available from <http://www.linguistics.ucsb.edu/faculty/stgries/teaching/groningen/index.html>

- a. the size of the corpus or the token frequency of all the constructions
- b. the token frequency of all the BA-construction
- c. the token frequency of the investigated verbs in BA-construction

As a result of the collexeme analysis, a list of verbs presented with their collostructional strength. The stronger the collostructional strength the verb has, the more attractive the verb is to the construction.

Distinctive collexeme analysis

Secondly, the distinctive collexeme analysis (Gries and Stefanowitsch 2004a) is designed to investigate the semantic relations between a specific verb and the various constructions in which the verb is licensed. The analysis can tell which construction is the verb more attracted to. This analysis is of great help to tell the distributional difference between two synonymous constructions, such as the English ditransitive construction and the dative construction. This type of analysis is applicable to Chinese BA-constructions. The verb *bao* (wrap), for instance, can occur in both the caused-motion BA-construction and the resultative BA-construction (see 1a and 1b).

1a *ba mao-jin bao zai tou shang* (caused-motion BA-construction)
 BA towel wrap at head up
 ‘[Someone] wrapped the towel around the head.’

1b *ba tou bao shang mao-jin* (resultative BA-construction)
 BA head wrap up towel
 ‘[Someone] wrapped the head with towel.’

Although 1a and 1b have the same verb *bao* (wrap), they fall in two different BA-constructions (see the detailed analysis in Section 9.9). The distinctive collexeme analysis is applicable to this case to distinguish the distributional difference between these two BA-constructions.

To run the distinctive collexeme analysis by using R, the following statistics are needed:

- a. the token frequency of the verbs in two or more specific constructions
- b. the overall token frequency of each construction in the corpus

The result is also a list of verbs with their different collostructional strength indicating their specific collostructional strength in the specified BA-constructions. The stronger strength of the verb in the construction is understood as the higher degree of attractedness of the verb to that construction.

Covarying collexeme analysis

Thirdly, the covarying collexeme analysis (Gries and Stefanowitsch 2004b; Stefanowitsch and Gries 2005) investigates the relations between two the lexicons co-occurring in the same construction. In the caused-motion BA-construction with a specific postverb, for instance, licensed many verbs. However, some verbs are more attracted to the construction than others. This attractedness can be understood as the semantic compatibility between the postverb and the verbs which are licensed in the BA-construction. To account for their different usage distributions, the covarying collexeme analysis can be adopted. With the help of this covarying collexeme analysis, a list of verbs with their collostructional strength can be ordered to indicate their attractedness to the caused-motion BA-construction with the specific postverb (see Section 9.5-7 for more detailed discussion). To carry out the analysis, the R software requires the token frequency of each lexeme-lexeme combination occurring in the construction under investigation.

In all, the three types of collostructional analysis do offer adequate ways to examine the association among/between the co-occurring lexemes in the construction as well as the association between the lexeme and its construction. The lexeme which enjoys the greater collostructional strength is the closer to the meaning of its co-occurring construction semantically (Perek 2015). Such collostructional analyses also support my claim that verb semantics alone is not enough for understanding the BA-construction. The semantics of other components should also be taken into consideration (see Chapter Nine).

4 Constructionist approach towards the BA-construction

4.1 Introduction

Modern linguists of various schools pay a great attention to the study of verb-construction relations. The studies in this realm offer some assistance to the study on Chinese BA-constructions. Both lexicalist approaches and constructional approaches are interested in relations between verb meaning and constructional meaning. The lexicalist approaches assume that verbs are the determinant of the semantic and syntactic behaviour of sentences (Pickering and Branigan, 1998; Boland and Boehm-Jernigan, 1998; Juliano and Tanenhaus, 1994; MacDonald, Pearlmutter & Seidenberg, 1994; Levelt 1989; levelt et al, 1999). Section 4.2 discusses two major lexicalist approaches. They are the lexical rule approach (see Section 4.2.1) and the derivational verb template approach (see Section 4.2.2). Section 4.2.3 discusses their problems.

Unlike the lexicalists, cognitive constructionists argue that the constructions are the most basic units in languages and they are regarded as form-meaning pairings (Goldberg 1995, 2006, 2000, 2003, 2013d; Goldberg, Casenhiser and White 2007; Lakoff 1987, Langacker 1987; Croft 2001; Fillmore et al. 1988; Boas 2013a). The constructions are defined as being independent of verb meaning. Argument structure construction analysis treats verb-construction corresponding relation as the fusion between participant roles of the verb and the argument roles of construction (Goldberg 1995, 2006). For the convenience of discussion, such constructional model is called fusion model.

The fusion model works well with both the fully matched constructions and the mismatch constructions. In the case of mismatch constructions, some part of the meaning is contributed by the construction alone. The cognitive constructionist approaches go further to claim that the basic constructions reflect basic human experiences. I discuss all these aspects of constructions and their descriptive advantages in Section 4.3.

In Goldberg's fusion model, the argument structure constructions can be organised in a three-level hierarchy of specificity. Although Goldberg (1992, 1995, 1997, 2010) contends that her constructions are skeletal, the verb-construction fusion mechanism is more proper to be posited at the mid-level. That is, it is only the mid-level construction that the verb is integrated into the skeletal construction. The productivity of constructions can also be adequately accounted for at

this level. At the bottom, the substantive construction has all other slots, except for verb, filled with their respective lexical items to form a legitimate BA-construction. In my analysis, BA-construction has rich variants. Each variant has its own skeletal construction, mid-level construction and substantive construction. Since variants have their respective skeletal constructions, their substantive constructions at the bottom level leads to different substantive BA-constructions or actual BA-sentences. (see Chapter Two for detail). I argue that both the mid-level construction and the low-level construction of the hierarchy make some contribution to the acceptability account of BA-sentences. I discuss both the hierarchy and the productivity of constructions in Section 4.4. The hierarchical organisation of constructions is discussed in Section 4.4.1 and the partial productivity of constructions is handled in Section 4.4.2.

Within the argument structure construction perspective, Chinese BA-constructions can have three sub-types – i.e., caused-motion BA-construction, resultative BA-construction and caused-transfer BA-construction. I also notice that both the caused-motion BA-constructions and the resultative BA-constructions have rich alternating variants. Fusion mechanism can be applied to most sub-types of BA-constructions (see section 4.5).

Constructions can also be classified, according to the verb-construction relations, into matched construction and mismatch construction. Besides these two types, Chinese has unmatched constructions and verbless constructions.

Although the theoretical model of argument structure construction is successfully applicable to many types of Chinese BA-constructions – i.e., fully-matched BA-construction and mismatch BA-construction, problems still persist at least in unmatched BA-constructions and verbless BA-constructions. I will discuss various problems of Goldberg’s fusion mechanism in Section 4.6.

Section 4.6 is further divided into three sub-sections. Section 4.6.1 discusses the problems arising from the Semantic Coherence Principle of Goldberg’s fusion model. Section 4.6.2 analyses the counter-evidence of fusion found in the unmatched BA-constructions. Section 4.6.3 contends that fusion is impossible in a BA-construction containing no predicator verb.

4.2 Lexicalist approaches

The researchers adopting lexicalist approaches emphasise the importance of verbs in accounting for the generation of syntactic structures. They contend that the syntactic behaviour of a verb is determined by the semantics of that verb (Levin 1985; Chomsky 1986; Carter 1988;

Levin & Rapoport 1988; Rappaport & Levin 1988; Pinker 1989; Gropen et al. 1989, Rappaport, Malka and Levin 1999). The verb *kick*, for example, takes three participant roles, *kicker*, *kicked*, and *kick.place*. The three-argument sentence exemplified by 1 can be accounted for as being derived from the semantics of this three-place verb *kick*.

1 Tom kicked a ball into the hole.

Lexicalists, in addition, notice that a verb may occur in more than one argument structure patterns. In accounting for these pairwise alternations, lexicalists hold a polysemy view and argue that alternating argument structures are derived from different senses of the same verb, which occurs in different alternating variants. The argument structure patterns sharing the same verb are called alternate variants, such as caused-motion construction (see 2a) and with-construction (see 2b) in locative alteration.

2a Ted loaded the bricks into the boat. (caused-motion construction)

2b Ted loaded the boat with bricks. (with-construction)

This section discusses the alternating variants through lexicalist approach.

Among various schools, two specific groups of lexicalist approaches have been attracting more attention,— i.e., lexical rule approach (see Section 4.2.1) and derivational verb template approach (see Section 4.2.2).

4.2.1 Lexical rule approach

Researchers adopting lexical rule approach hold the polysemy view. According to this polysemy view, the verb *load* has two senses in their alternating variants (see Examples 2 above). They are the motion-placing sense in the caused-motion construction and the motion-filling sense in the with-construction. In accounting for the locative variants, a lexical rule is called for to account for the different senses of the same word (Bresnan 1982; Fillmore 1990; Foley and Van Valin 1984; Levin and Rappaport Hovav 1994; Levin 1993; Grimshaw 1990; Jackendoff 1975, 1990; Pollard and Sag 1994; Pinker 1989).

The changes in alternating argument structures have long been regarded as some subtle

changes in meanings (Anderson, 1971; Pinker, 1989). These meanings come from the main verb via projection (Bresnan and Kanerva, 1989; Dowty, 1991; Grimshaw, 1990; Gleitman, 1994; Jackendoff, 1983; Pinker, 1989). Lexical rule researchers also contend that lexical rules can be applied not only to the intransitive verb cough, for instance, takes one participant alternations (see example 3a) but also to the transitive construction with the intransitive verb cough (see example 3b). In the latter case, researchers posit lexical rules to transform an intransitive verb into a corresponding transitive one (Müller 2006). The intransitive verb cough, for instance, takes one participant and occurs in one-place argument structure (see Example 3a). The transformation requires a direct object and an oblique path phrase (see Example 3b).

3a Pat coughed. (Intransitive)

3b She coughed the milk out of her nose. (Caused motion) (Goldberg 2013d:443)

Lexicalists believe in two factors which lead them to posit the lexical rules to form new verb senses: “(1) even overt complement structure appears to be predictable by general linking rules that map semantic structure onto the syntactic form, and (2) the same verb stem often occurs with more than one complement configuration.” (Goldberg 1995:8) Lexicalists, in this case, is facing a challenge that it is hard to decide which sense is the basic one from which other senses are derived.

4.2.2 Derivational verb template approach

In order to solve the problem, other researchers adopting derivational verb template approach describe verbs as verb root plus its templates (Briscoe and Copestake, 1999; Koenig and Davis, 2001; Meurers, 2001; Müller, 2002, 2006; Müller and Wechsler, 2014; Rappaport Hovav and Levin, 1998; Sag, 2012). A verb template can be represented as a form-content pairing. The verb *nibble*, for instance, is described by Müller and Wechsler (2014: 4) as a predicate argument structure, which Goldberg (2013d) calls a derivational verb template (see 4).

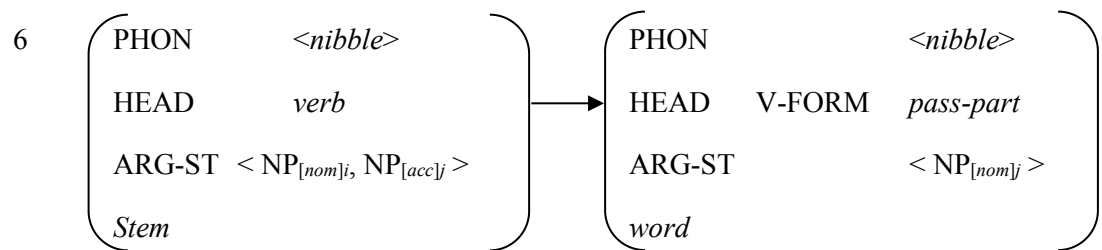
$$4 \quad \left(\begin{array}{ll} \text{PHON} & \langle \textit{nibble} \rangle \\ \text{ARG-ST} & \langle \text{NP}_x, \text{NP}_y \rangle \\ \text{Content} & \textit{nibble} \quad (x, y) \end{array} \right)$$

The derivational verb template approach emphasises the central position of the verb represented as a predicate argument structure. It also holds the polysemy view and insists that lexical rules exist to account for new verb senses of the same verb in alternates. In this framework, the new meaning of a verb is said to be the combination of the verb root and the additional verb template. The verb nibble occurring in the related sentences is said to have different senses. For example, it can occur in both 5a and 5b below.

5a The rabbits were nibbling the carrots.

5b The carrots were being nibbled. (Müller and Wechsler 2014: 4)

To relate these two different senses, Müller and Wechsler (2014:7) posit the lexical rule represented in Structure 6 down below.



This lexical rule takes the two-place verb (illustrated in 5a) as input and outputs a verb with participle morphology and one-place argument structure (illustrated in 5b).

As previously discussed, the lexical rule approach is said to miss the theoretical generalisation. Unlike the lexical rule approach, the derivational approach posits constraints clearly either on verb roots or the argument structure construction (Müller and Wechsler, 2014).

4.2.3 Controversial issues

Lexicalists and constructionists have argued for their respective theoretical framework in many aspects. At least three of them are relevant to my study of Chinese BA-constructions. They are (1) polysemy and monosemy view, (2) implausible verb sense, and (3) relation between verb and construction.

Firstly, in discussing the relations between verbs and the alternating constructions where the verbs occur, lexicalists insist on a verb polysemy view, while constructionists insist on

monosemous view. This is a very controversial issue. In some cases, monosemy view has the advantage, while in others, both the polysemy and monosemy view are adequate. For example:

7a John threw the ball to her / the door.

7b John threw her / *the door the ball.

In lexicalists' analysis, the verb *threw* is said to have distinctive senses in different constructions. In 7a, the verb has the meaning that X throws Y to Z; while in 7b, the same verb designates that X throws Y in such a way that Z captures it. The verb in 7b has an additional meaning that Z receives Y. The verb polysemy view offers the interpretation that the verb *threw* in 7 has different templates to license different construction. Within the monosemy view, this additional meaning is argued to serve as evidence that new sense is provided by the construction (Goldberg 1995).

Many BA-constructions demonstrate that many of their alternating variants do **NOT** support the verb polysemy view. Both 8a and 8b, for example, convey the same message that they spread the jam on the steamed-bread, although they differ in the choice of BA-marked object.

8a *ta-men ba guo-jiang tu zai man-tou shang*
 They BA jam spread at steamed bun up
 'They spread the jam on the steamed bun.'

8b *ta-men ba man-tou tu shang guo-jiang*
 They BA steamed bun spread up jam
 'They spread the steamed bun with the jam.'

Intuitively, it is odd to posit two different senses of the verb *tu* (spread) for these two BA-sentences.

Other Chinese BA-sentences can also be found to go against the verb polysemy view. Examples 9a-c, contain the same verb *chi* (eat). 9a conveys the message that he ate up the meal. 9b designates that he had free meals provided by his parents and his parents became poor as a result. 9c conveys the message that he was afraid of eating spinach (since he had had too much of it).

9a *ta ba fan chi le*
 He BA meal eat PAR
 ‘He finished eating his meal.’

9b *ta dou ba fu-mu chi qiong le*
 He even BA parents eat poor PAR
 ‘He even makes his parents poor by eating.’

9c *bo-cai ba ta chi pa le*
 Spinach BA he eat afraid PAR
 ‘He is afraid of eating spinach.’

Intuitively, it is unreasonable to posit different senses of eating in these four BA-sentences. If the lexicalist approach is applied to these exemplified BA-sentences, the verb *chi* (eat) in 9b, for example, should have the meaning that ‘someone causes the other to be affected by eating his food’ and the same verb in 9c should have the meaning that ‘someone causes the other to be affected since he has had too much of the food’. Of course, intuitively no such verb senses are possible. That is, the polysemy view of verb may bring about unreasonable verb meanings.

Secondly, Goldberg (1995) holds a monosemy view of verb and argues that a verb containing a same meaning can occur in different constructions. It is the constructions that contribute different meaning. The same verb *sneeze*, for example, can be used in the following two different constructions (see 10a and 10b).

10a He sneezed.

10b He sneezed the napkin off the table.

According to lexicalists approach, the verb *sneeze* has two different senses in these different constructions. The verb in 10a denotes that X sneezes. The same verb in 10b obtains a derived meaning that ‘X causes Y to move Z by sneezing’. Such a verb meaning to Goldberg (1995, 2014) is implausible.

In arguing against implausible verb senses, Goldberg (2013d: 425) presents more convincing

examples (see 11a-c).

11a “He was drinking the heart right out of a fine spring afternoon.” (James Crumley, *The Last Good Kiss* [1978])

11b “The people of this small town [...] have been unable to pray Mrs. Smith’s two little boys home again.” (Mark Turner, personal communication)

11c “His thousands of travelling fans [...] had roared him into the Thomas and Mack Center ring.” (www.topix.net/wire/world-soccer/manchester-united)

In lexicalist approaches, the verbs in these three exemplified sentences would need the implausible verb senses to fit their respective sentences. The verb drink in 11a should have the meaning that ‘someone spends lots of time drinking’. The verb pray in 11b should have the meaning that ‘someone causes others to come back home by praying’. The verb roar in 11c should have the meaning that ‘someone causes another person to move by roaring’. “These senses are implausible in that one doesn’t find languages that devote unique stems to these meanings.” (Goldberg 2013d: 443).

Thirdly, Goldberg (1995, 2013d), therefore, criticises that the derivational view towards the verb-construction relations overstates the verb senses and creates implausible verb senses. Many mismatch constructions as illustrated in 11a-c can never be derived from the verb sense, which itself is even implausible. Goldberg, thus, argues for an approach focusing more on constructional meaning by assuming that except for verb, construction contributes meanings. Furthermore, the construction is argued to exist independently from the verb. In the following section, the constructionist approach is introduced and tested with various BA-constructions.

4.3 Constructionist approaches

Constructionist approaches emphasise the independent status of construction. They distinguish themselves from lexicalist approaches at least in the four aspects. They can be presented as following four claims. (1) Construction is treated as a form-meaning pairing; (2) Construction is taken as an independent linguistic unit; (3) Construction should be studied with the

experientially related approach (such as, Goldberg's experiment on the independent status of construction, see section 4.3.2); (4) the usage-based approach (Langacker 2000) is able to spot many other unique features of construction. These four aspects will be discussed in the following four sub-sections.

4.3.1 Form-meaning pairing

It is agreed upon among the cognitive linguists that the construction is the basic unit of languages (Goldberg 1995, 2000a, 2006, 2013d). Many cognitive linguistics researchers define constructions as learned pairings at various levels of abstraction and complexity (Fillmore, Kay and O'Connor, 1988). One of their important tasks is to study construction as the form-meaning relation. In a constructionist approach, sentences are analysed as the link between the meaning and the linguistic expression. Following this cognitive view, the BA-constructions are also studied in terms of their semantics and their syntactic realisations.

The very prevailing version of construction grammar is the argument structure construction grammar by Goldberg (1995). Just like lexicalist approaches, this version of construction grammar also focuses its study on the verb-construction relations. Yet, this cognitive constructionist approach differs from all the lexicalist approaches in the sense that constructions are not derived from the verb semantics. Instead, they have their own independent status.

4.3.2 Independent status

The second important claim constructionist approach researchers have made is that the construction, such as argument structure constructions proposed by Goldberg (1995), is an independent unit stored in long-term memory. They argue against the view with evidence that argument structure construction is derived from verb semantics. To argue for the independence of construction, Goldberg (1995) conducts an experiment by giving 10 non-linguists a sentence with a nonsense verb (see Example 12).

12 She topamased him something. (Goldberg 1995: 35)

She reports that six out of ten participants assigned the 'give' meaning to the nonsense verb. Since no real verb appears in the sentence, there is no way for this sentence to be derived from any verb

meaning. Although Goldberg's goal of this experiment is to convince readers that the giving meaning is interpreted as the most basic sense of the construction, it can also serve as evidence for the independent status of construction.

The independent status of construction can also be well supported by Chinese BA-sentences. Instead of claiming that the argument structure meaning can be solely contributed by its verb as lexicalists propose, I contend with evidence that a BA-construction must have its own meaning. Both the BA-sentences (see 13a and 13b), for instance, contain the same verb *shui* (sleep). Example 13a conveys the message that *Junqi Niang* slept; while 13b conveys the message that someone slept with *Junqi Niang*.

13a *Junqi Niang shui le*

Junqi Niang sleep PAR

'Junqi Niang is sleeping.'

13b *Ba Junqi Niang shui le* (CCL)

BA Junqi Niang sleep PAR

'[Someone] slept with Junqi Niang.'

Intuitively, the verb *shui* (sleep) can never have the meaning 'to make someone to sleep with'. The only possible meaning the verb has is 'X sleeps'. Then, the question is which linguistic unit(s) contributes the abstract causative meaning. The only possible answer is the BA-construction itself. The BA-construction together with the verb *shui* (sleep) can be interpreted as the meaning that 'someone forces another to sleep with him'.

Another pair of examples also supports the claim. Both Examples 14a and 14b have the same main verb *pao* (run) followed by a resultative word or phrase. 14a conveys the message that he lost his shoes in running. 14b denotes that he ran to the extent that he was sweating profusely.

14a *ta ba xie pao diu le* (CCL)

He BA shoes run loose PAR

'He lost his shoes in running.'

14b *ba ta pao de man-tou-da-han* (CCL)

BA he run ADV sweet a lot

‘He ran to the extent that he was sweating profusely.’

If a lexicalist approach is applied, the verb *pao* (run) in 14a would have to be understood as having the meaning that ‘run to lose one’s shoes’. The same verb in 14b would have to be understood as having the meaning that ‘run to sweat profusely’. However, the verb *pao* (run) in both exemplified BA-sentences cannot have such meanings. What, then, contributes to the causative meaning of the BA-sentences? The answer, again, is the BA-construction itself. In this sense, BA-constructions must have their own independent status.

4.3.3 Human relevant scenes

The basic constructions, as Goldberg (1959: 39) claims, reflect humanly relevant scenes. These basic constructions “have been argued to designate scenes which are in some sense basic to human experience”. This experience is basic to human and stored in the long-term memory as the background encyclopedia knowledge. To account for these experience-relevant constructions, Goldberg posits a Scene Encoding Hypothesis. The hypothesis states that “[c]onstructions which correspond to basic sentence types encode as their central senses event types that are basic to human experience.” (Goldberg 1995: 39)

Several researchers found some evidence in the certain language acquisition. Bowerman (1989) suggests that the very first utterance regarding the construction in child language development is relevant to particular humanly scenes. Additionally, insights from the learned verbs reflect a close relation between the construction and basic human experience scenes. Goldberg (1995) discusses in detail the three such basic types – i.e. caused-motion construction, ditransitive construction and resultative construction. Similar constructions are also found in Chinese. I have observed that the data extracted from CNC include caused-motion BA-constructions (see 15a), caused-transfer BA-constructions (see 15b) and resultative BA-constructions (see 15c). All the three types of exemplified BA-sentences convey the similar message that someone does something to cause an entity to be involved in a change.

15a *ba shu fang zai le zhuo-zi shang* (cause-to-move)
 BA book put on ASP table up
 ‘[Someone] put the book on the table.’

15b *ba shu song gei le hai-zi-men* (cause-to-have)
 BA book give to ASP children
 ‘[Someone] gave the book to children.’

15c *ba shu shao cheng le hui* (cause-to-become)
 BA book burn become ASP ash
 ‘[Someone] burnt the book into ashes.’

The change can be specified differently in different types of BA-constructions. In the caused-motion BA-construction (see 15a), the *shu* (book) is relocated. In the caused-transfer BA-construction (see 15b), the *shu* (book) is transferred to the new possessor *hai-zi* (kids). In the resultative BA-construction (see 15c), the *shu* (book) becomes ashes as a result of burning.

4.3.4 Usage-based approach

Cognitive Linguistics adopts various types of usage-based approaches. They focus their study on the issues of language use, usage frequency and usage distributions. The language use and the knowledge of the language are always the interests of linguistics. In rejecting the unnecessary distinction between competence and performance, Tomasello (2003:5), amongst other cognitive linguists, argue that “language structure emerges from language used.”

Evans and Green (2006) argue that the language system is a function of language use, and therefore, the relative frequency of certain words/constructions that speakers use will shape the nature of the language system. “[L]inguistic units that are more frequently encountered become more entrenched (that is, established as a cognitive pattern or routine) in the language system. According to this view, the most entrenched linguistic units tend to shape the language system in terms of patterns of use, at the expense of less frequent and thus less well entrenched words or constructions.” (Evans and Green 2006: 114) I discuss in details this usage-based issue of BA-constructions in Chapter Eight.

4.4 Hierarchy of argument structure constructions

The construction discussed in Goldberg's framework is called argument structure construction. This construction is described at three levels. They are the skeletal level, the mid level and the bottom substantive level. Goldberg contends that her construction is skeletal in nature. A skeletal construction is composed of many slots. The verb meaning is better presented as a rich semantic frame. The verb meaning is integrated into the semantically compatible constructional meaning via fusion between the verb participant roles and the argument roles of construction. The argument slots are finally filled with actual lexical units to form a corresponding substantive construction.

Like many other cognitive linguists (cf. Iwata 2008; Capelle 2006; Perek 2015), I will test this three-level hierarchy with various types of BA-constructions in Section 4.4.1.

4.4.1 Three levels of argument structure constructions

The argument structure constructions in Goldberg's analysis is discussed at three different levels. The skeletal construction is the most abstract level which is at the higher level. The skeletal construction is the most abstract level. The mid-level constructions have the predicate verb specified and demonstrate some rich verb-construction relations. At this level, various verb-construction relations, as well as the polysemy of construction, are discussed. At the substantive level, constructions have their slots filled with specific lexical units to form legitimate BA-constructions. Each level has its own degree of specificity. The first two levels have captured attention from most researchers. In the following part of this sub-section, I will discuss these three levels in details.

(1) Skeletal construction. Goldberg (1995) discusses three basic argument structure constructions, such as caused-motion construction, resultative construction, and ditransitive construction, as skeletal constructions. The skeletal structure of the construction contains several slots. Some of the slots are obligatorily filled at the substantive level; while some of them are left blank (see Chapter Eight and Nine).

In Goldberg's (1995) analysis, the caused-motion construction is a three-place argument structure. It consists of three arguments – i.e. cause, theme and goal. These three argument roles are linked with subject, object and oblique respectively. 16a, for example, is analysed as semantic-syntactic pairing formally represented in Construction 16b.

16a Tom put the flowers on the table.

16b Sem	CAUSE-MOVE	< cause	theme	goal >
		↓	↓	↓
Syn	V	SUBJ	OBJ	OBL

This formalised representation of caused-motion construction is also applicable to many Chinese BA-constructions. Example 17, for instance, is a Chinese BA-sentence designating a caused-motion event. This caused-motion BA-construction conveys the message that they put the book on the table.

17	<i>ta-men</i>	<i>ba</i>	<i>shu</i>	<i>fang</i>	<i>zai</i>	<i>zhuo-zi</i>	<i>shang</i>	<i>le</i>
	They	BA	book	put	at	table	up	PAR
	‘They put the book on the table.’							

The three participant slots as illustrated in 16b are filled by *ta-men* (they), *shu* (book) and *zhuo-zi* (table) respectively (see 17).

The resultative construction can be exemplified by the BA-construction 18a down below.

18a She watered the flower flat.

The resultative construction is composed of three argument roles – i.e. agent, patient and result-goal. They are linked with subject, oblique and object respectively (see Construction 18b).

18b Sem	CAUSE-BECOME	< agent	patient	result.goal >
		↓	↓	↓
Syn	V	SUBJ	OBJ	OBL _{pp/adj}

This formal representation of the resultative construction by Goldberg (1995) is also applicable to some Chinese resultative BA-constructions. Example 19, for instance, is such a resultative BA-construction. It conveys the message that he tore up the book.

19 *ta ba shu si sui le*
 He BA book tear broken PAR
 ‘He tore up the book.’

The Chinese resultative BA-construction also contains three slots – i.e. agent, patient and result.goal. The result.goal of typical Chinese resultative BA-construction is linked with a resultative postverb, such as *sui* (broken) in 19.

The English sentence exemplified by 20a falls into the type of ditransitive construction.

20a They gave him a book.

The ditransitive construction also consists of three arguments. They are agent, receiver and patient. The three argument roles are linked with subject, object₁ and object₂ respectively (see 20b).

20b SemCAUSE-HAVE		< agent	receiver	patient >
		↓	↓	↓
Syn	V	SUBJ	OBJ ₁	OBJ ₂

Chinese has various ‘cause-to-have’ types of constructions. The most frequent BA-constructions designating the cause-to-have meaning is what I call caused-transfer BA-construction. Sentence 21a, for example, conveys the message that he sent the book to the kids.

21a *ta ba shu song gei le hai-zi-men*
 He BA book send give ASP children
 ‘He sent the book to the kids.’

This caused-transfer BA-construction can be formalised as 21b.

21b SemCAUSE-HAVE		< agent	patient	receiver >
		↓	↓	↓
Syn	V	SUBJ	OBJ	OBL

(2) Constructions with specific verbs. The semantic argument structure of skeletal constructions, such as caused-motion BA-construction, resultative BA-construction and caused-transfer BA-construction, are described as the combination of predicator slot and argument role slots. The predicator slot of a construction can be filled by various verbs. The construction with its specified predicate is treated at the mid-level of the construction hierarchy.

Goldberg (1995) argues that construction is polysemous. English caused-motion construction, as Goldberg analyses, can have at least five senses. One of these five senses is prototypical, while others are extended from the prototypical one.

I agree with Goldberg (1995) that the construction carries independent meaning and that different constructions with the same verb express different meanings. As discussed before, a verb in many cases carries the same meaning even if it occurs in different constructions. Therefore, it is the different constructions that cause the distinction in meaning among these different sentences under question. For example,

22a Terry pushed the door shut. (Goldberg 1995: 188)

22b Terry pushed the trolley out of the room.

22a and 22b share the verb push which carries the same meaning that can be presented as the semantic array of ‘pusher’ role plus ‘pushed’ role. Even so, the two sentences express different meaning. 22a expresses that ‘X causes Y to be in a new state Z’; while 22b suggests that ‘X causes Y to move Z’. Goldberg (1995) names the first construction as resultative construction and the second as caused-motion construction. Since the two instances of the verb occurring in the two different constructions have the same sense, it is the construction that contributes the semantic distinction, not the verb.

Goldberg (1995) argues that the construction can be polysemous. Yet, I found out that the construction can be polysemous only at the mid-level when the predicator slot of the same construction is filled with different verbs. Based on this observation, I argue that it is the different verbs, which occur in the same mid-level construction, that lead to distinctive senses of the construction. For example,

23a Sam allowed Bob out of the room. (Goldberg 1995: 161)

23b Harry locked Joe into the bathroom. (Goldberg 1995:162)

23c Sam helped him into the car. (Goldberg 1995:162)

All the three exemplified sentences fall into the category of caused-motion construction. 23a expresses the meaning that ‘X enables Y to move Z’. 23b carries the meaning that ‘X prevents Z from moving Z’. Differently, 23c expresses that ‘X helps Y to move Z’ (Goldberg 1995:161-162). What makes their semantic difference is their different verbs.

Thus, I argue that it is not the skeletal construction that is actually polysemous. What makes a skeletal construction polysemous is when its predicator slot is filled with specific different verbs. It is only when the predicator slot of a skeletal construction is filled with a specific verb. Thus, it is reasonable to further modify the polysemy view of construction and argue that it is the mid-level construction that is polysemous. The skeletal argument structure construction has merely one single abstract meaning.

Within the interaction between the constructional and verb meaning, I have noticed that not all the verbs are licensed in a particular construction. Different constructions allow different verbs to occur with. For example, Goldberg’s B-type conditioned caused-motion construction, which has the sense that “the conditions or satisfaction associated with the act denoted by the predicate entail: ‘X causes Y to move Z’” (Goldberg 1995: 161). The verbs occur in the B-type include “force dynamic verbs (Talmy 1985b) that encode a communicative act” (see Examples 24a-d).

24a Sam ordered him out of the house.

24b Sam asked him into the room.

24c Sam invited him out to her cabin.

However, the communicative act verbs speak and tell are not licensed in the B sub-type (Goldberg 1995) of caused-motion construction (see 25a-b).

25a *Sam spoke him into the room.

25b *Sam told him into the room.

Such constrained verb-construction relations are also observed in Chinese BA-constructions.

The obvious difference is that many verbs which are licensed in explicit BA-constructions are disallowed in implicit BA-constructions. Both 26a and 26b, for example, contain the same verb *zuo* (sit). Example 26a conveys the message that he sat on the chair and the chair collapsed as a result.

26a *ta ba yi-zi zuo ta le*
 He BA chair sit collapse PAR
 ‘He sat on the chair and the chair collapsed as a result.’

26b **ta ba yi-zi zuo le*
 He BA chair sit PAR

The verb *zuo* (sit) is licensed in the explicit BA-construction containing the result word *ta* (collapsed) (see 26a). However, the same verb is disallowed in the implicit BA-construction (see 26b).

Goldberg (1995) contends that verb meaning is rich encyclopaedic knowledge in nature. It is described as a semantic array of participant roles. The integration of verb into construction is represented through fusion between participant roles of verb and argument roles of construction. A verb of throwing class, for example, can be integrated into the caused-motion skeletal construction to make a throwing caused-motion construction (see 27a).

27a Tom threw the ball into the basket.

The integration between the verb and the construction as being illustrated in 27a can be represented via fusion illustrated in construction 27b.

27b Sem	CAUSE-MOVE	< cause	goal	theme >
R: instance	THROW	< thrower	thrown.place	thrown >
Syn	V	SUBJ	OBL	OBJ

In this particular case, the verb contains three participant roles – i.e. thrower, target and thrown.

They fuse with cause, goal and theme argument roles respectively (see construction 27b above).

(3) substantive constructions. substantive constructions are positioned at the lower level. They differ from mid-level constructions in the way that all of their argument slots are filled. In a verb-specific construction, the argument fillers are also to some extent constrained. In Chinese BA-constructions with communicative act verbs, for instance, the object must be filled with a [+human] NP (see 28a); otherwise the sentence is unacceptable (see 28b). Example 28a conveys the message that they invited teachers into the hall. Example 28b is semantically odd because no one will invite a chair into some place.

28a *ta-men ba lao-shi qing jin ke-ting*
They BA teacher invite enter hall
'They invited teachers into the hall.'

28b **ta-men ba yi-zi qing jin ke-ting*
They BA chairs invite enter hall

In sum, constructions can be viewed to be organised in a three-level hierarchy. The skeletal construction is positioned at the high level. The construction integrated with its verb is placed at the mid-level. The substantive construction is at the lower level. The high-level construction is skeletal because all its slots are unfilled. The mid-level construction is the most complicated type of construction, which contains complicated fusions between verb participant roles and argument roles of construction. These complicated fusions will be discussed further in the following Section 4.4.2.

4.4.2 Fusion and its principles

The mid-level constructions are the verb-specific constructions dealing with verb-construction integration via fusion in Goldberg's (1995) fusion model. Not all verbs are licensed in every construction. In other words, not all the verbs can be integrated into all the constructions. Since the integration is carried out via the fusion between the verb participant roles and the argument roles of construction, it is worthwhile to explore the relations between verb semantics and constructional

semantics in detail. On fusion, Goldberg (1995: 50) makes the following statement.

[F]usion is meant here to capture the simultaneous semantic constraints on the participant roles associated with the verb and the argument roles of the construction, as opposed to denoting fusion of slots within a single lexical entry. In addition, the possibility of roles fusing is not determined by whether a single role filler can simultaneously fill both roles, but rather by whether the roles themselves are of compatible types.

Whether fusion is possible or not is determined by two principles – i.e. the Semantic Coherence Principle and the Correspondence Principle. The Semantic Coherence Principle is very relevant to my study of BA-constructions. The Semantic Coherence Principle says that “[only] roles which are semantically compatible can be fused” (Goldberg 1995: 50). The participant role of verb and the argument role of construction are compatible if the former can be construed as an instance of the latter. “Whether a role can be construed as an instance of another role is determined by general categori[s]ation principles.” (Goldberg 1995: 50). For example, the digger participant of the verb dig can be fused with the agent role of the caused-motion construction because the digger role can be construed as an instance of the agent role (see 29a). According to the general categorization principle the digger participant cannot be construed as an instance of the patient role. Therefore, the digger participant cannot be fused with the patient and realised as the grammatical object (see 29b).

29a They dug out a vessel.

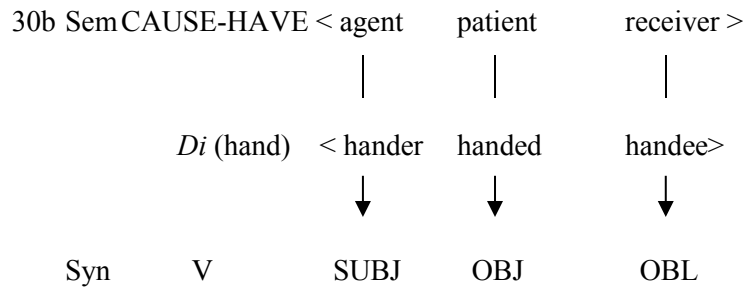
29b *The vessel dug them tired.

This Semantic Coherent Principle works well with some Chinese BA-constructions. Sentence 30a, for example, conveys the message that he handed the present to the teacher.

30a *ta ba li-wu di gei le lao-shi*
He BA present hand give ASP teacher
‘He handed the present to the teacher.’

30a is a caused-transfer BA-construction with three argument roles – i.e. agent, patient and

receiver. The verb *di* (hand) is described as a semantic array of hander, handed and handee. They are semantically compatible (or coherent) with agent, patient and receiver respectively. They are all understood as instances of agent, patient and receiver respectively. According to the Semantic Coherence Principle, hander, handed and handee can be fused with the agent, patient and receiver respectively (see 30b).

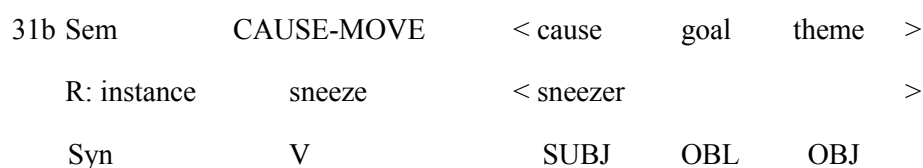


In the case of Example 30a, all the three profiled participants in the verb's frame semantics can be put in a one-to-one correspondence with all the argument roles of the caused-transfer BA-construction.

However, it is not the case that all the verb participant roles have a one-to-one correspondence to all the argument roles of the construction in which the verb occurs. Goldberg labels such verb-construction relation as the mismatch. The sentences with such mismatched verb-construction relation are known as mismatch sentences. For example:

31a He sneezed the napkin off the table. (Goldberg 1995: 55)

The verb sneeze is a one-place verb, which is associated with only one participant role sneezer. The caused-motion construction in which the verb occurs has three argument roles – i.e. cause, theme and goal. The fusion of the verb and the construction is formally represented by Goldberg (1995: 54) as 31b.

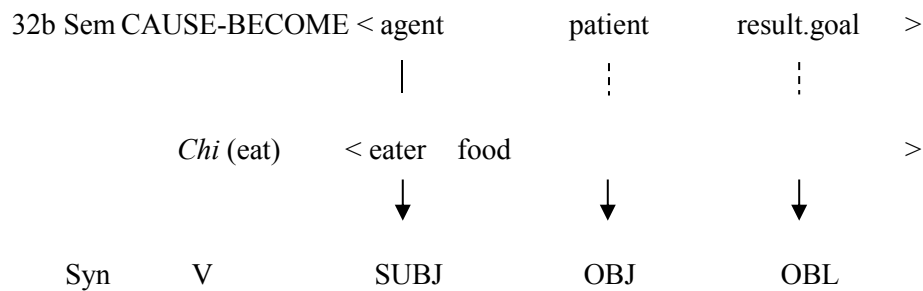


Since the verb *sneeze* has no participant role to fuse with goal and theme, these two non-fused argument roles have to be contributed by the caused-motion construction itself.

Such mismatch constructions are plenty in Chinese BA-constructions. Sentence 32a, for example, conveys the message that he used up all his money on food.

32a *ta ba qian chi wan le*
 He BA money eat finished PAR
 ‘He used up all his money on food.’

The verb *chi* (eat) is described as a semantic array of eater and food. The construction illustrated in 32a is a resultative BA-construction, which has three argument roles – i.e. agent, patient and result.goal. Both the verb event and construction event can be formally represented as 32b.



Although the verb contains the participant role food, it is not profiled and overtly expressed.

Although this resultative BA-construction has the profiled patient *qian* (money), it is not semantically compatible with any participant role of *chi* (eat). Thus, the patient must be contributed by the resultative BA-construction itself.

Since the semantics of a sentence is analysed as an integration of verb meaning into constructional meaning, it is legitimate for Goldberg (1995: 65) to claim that “at least one participant role and argument role must be fused”. For the convenience of discussion, I call it Minimal Fusion Requirement (MFR in short). In the constructionist analysis, then, some parts of sentence meaning are contributed by construction alone and others by both construction and its verb. I have also observed that quite a few mismatch sentences exist in English. Thus, this MFR is well preserved. This serves as a strong supporting evidence for Goldberg’s theoretical framework of fusion, or fusion model as I call it.

In the case of mismatch constructions, it is impossible to derive the constructional meaning from the verb semantics. It is also problematic to hold compositionality view that the meaning of a sentence is the combination of meanings of all the units within that sentence. Goldberg (1995) contends that her composite fused structure can keep this compositionality view by claiming that sentence meaning is the combination of verb meaning and constructional meaning. Goldberg calls this view as a weak compositionality view. We will soon find even this weak compositionality view is problematic (see the detailed discussion in Section 4.6).

4.4.3 Partial productivity

To further study the advantage of constructionist approaches, another important issue is worth discussing – i.e. partial productivity. By productivity, it is meant that the extent to which a particular construction may be extended to new and hypothetical verb forms (Wasow 1981; Pinker, Lebeaux and Frost 1987; Pinker 1989; Maratsos et al. 1985; Gropen et al. 1989, 1991; Braine et al. 1990; Goldberg 1995). Many researches indicate that constructions have partial productivity (Jackendoff 1975; Bresnan 1982; Goldberg 1995). The partial productivity can be interpreted that verb classes are licensed in different constructions. Furthermore, a construction can attract only some but not all of the verbs. Nor can a verb occur in any construction. The frequency of occurrence of verbs in constructions, therefore, varies.

Verb forms are semantically grouped together to form narrowly defined productive verb classes. In language learning, people are said to be able to store the verb and its construction that they have heard into their memory. They may also, if properly primed, retrieve this pattern and extend it to other semantically related verbs. The occurrence of verbs in particular constructions vary. In this usage-based account, two kinds of frequency information are recognised – i.e. token frequency and type frequency. Token frequency “refers to the number of times a given instance (e.g., a particular word) is used in a particular construction” and type frequency “refers to the number of distinct words that occur in a particular construction” (Goldberg 1995: 134). MacWhinney (1978) and Bybee (1985) have argued that the productivity is closely related to the type frequency. The higher the type frequency is, the more productive the construction should be. Goldberg (1995) offers a similar analysis and suggests that more verbs a verb cluster (or verb class) contains, more productive the cluster (verb class) is. I further explore and test this hypothesis in Chinese BA-constructions (see Chapters Seven, Eight and Nine).

Cognitive linguists contend that speakers have a usage-based model of linguistic knowledge (Langacker 1988). Within this perspective, Goldberg (2013d: 458) proposes that “the verbs that occur most frequently in each argument structure construction tend to encode the general meaning of that construction”. In her analysis, then, the verb *give* in English encodes the general meaning of the ditransitive construction. In my analysis of caused-motion BA-construction, for instance, the verb *fang* (put) adequately encodes the general meaning of caused-motion BA-construction, that is, someone causes something to move to someplace. More detailed analysis of various BA-construction types will be explored in Chapter Seven to test the adequacy of this statement.

4.5 Types of BA-constructions

I have discussed the vantage point of constructionist approaches. In this section, I apply the argument structure construction grammar developed by Goldberg (1995, 2006) to Chinese BA-constructions. I attempt to develop the formal representations of the three types of BA-constructions reflecting the basic human experiences in Section 4.5.1 and to offer some account of mismatch BA-constructions in Section 4.5.2.

4.5.1 Three experience-relevant basic BA-constructions

As many cognitive linguists suggest that basic sentence-level constructions designate scenes which are basic to human experience (Fillmore 1968; Langacker 1991; Goldberg 1995). Interestingly, I have observed that such constructions also exist in Chinese, such as the caused-motion BA-construction, the resultative BA-construction and the caused-transfer BA-construction. They all reflect basic human situations.

(1) Caused-motion BA-construction. Chinese caused-motion BA-construction denotes that X causes Y to be relocated Z. The sentence illustrated in 33a, for example, conveys the message that someone shoved the potato in my hand.

33a *ba tu-dou sai zai wo shou li* (CNC)
 BA potato shove in I hand inside
 ‘[Someone] shoved the potato in my hand.’

In the case of 33a, the prepositional phrase *zai wo shou li* (in my hand) led by the preposition *zai* designates the final location of the moving entity *tu-dou* (potato). The possible constructional account of 33a can be formally represented as 33b.

33b Sem	CAUSE-MOVE	< cause	theme	goal >
R: instance	<i>sai</i> (shove)	< shover	shoved	place >
Syn	V	SUBJ	CMPL	OBJ

As 33b indicates, the verb *sai* (shove) has three participant roles – i.e. shover, shoved and place – fused with cause, theme and goal respectively.

Although many verbs are licensed into this caused-motion BA-construction, I expect that different verbs have different occurring frequency count. Stefanowitsch and Gries (2003e) proposes a collocation analysis to study the co-occurring relations between construction and its verbs. I will discuss this analysis in Chapter Nine.

I have observed that English locative alternation has Chinese BA-construction counterpart. 34a and 34b, for example, have the same verb *bao* (wrap) and carry the similar meaning that someone wrapped up the hair with a towel. However, these two BA-sentences belong to different constructions.

34a *ba mao-jing bao zai tou-fa shang*
 BA towel wrap on hair up
 ‘[Someone] wrapped the towel over someone’s hair.’

34b *ba tou-fa bao shang mao-jing*
 BA hair wrap up towel
 ‘[Someone] wrapped up his hair with a towel.’

The semantics of the two instances of the same verb *bao* (wrap) is described as the three-participant semantic array represented in Structure 34c.

34c *Bao* (wrap) < wrapper wrap wrapped >

This verb semantics can be integrated into two different constructions. It can be construed as the caused-motion BA-construction with *mao-jin* (towel) as the trajector-object (see 34a) and denotes that the towel is moved to the hair. It can also be construed as the resultative BA-construction with *tou-fa* (hair) as the trajector-object (see 34b) and denotes that the hair is wrapped up with a towel. Their different BA-constructions can be well accounted for in 35a and 35b respectively.

35a Sem	CAUSE-MOVE < cause	theme	goal >	
R: instance	<i>bao</i> (wrap) < wrapper	wrap	wrapped >	
Syn	V	SUBJ	OBJ	COMPL

35b Sem	CAUSE-BECOME < cause	patient	result.goal	instrument	>
R: instance	<i>bao</i> (wrap) < wrapper	wrapped		wrap	>
Syn	V	SUBJ	OBJ		COMPL

(2) Resultative BA-construction. Chinese resultative BA-constructions are very complicated. They are complicated in the sense that the causative result Z-XP varies. Sentences exemplified in 36a-c, for instance, demonstrate various choices of the Z-XP. Example 36a conveys the message that someone cut it into pieces. Example 36b conveys the message that someone cut it into chunks. Example 36c conveys the message that someone cut it into very small pieces.

36a	<i>ba</i>	<i>ta</i>	<i>duo</i>	<u><i>sui</i></u>		(<i>V</i> + resultative verb)
	BA it	cut		broken (into pieces)		
				‘[Someone] cut it into pieces.’		

36b	<i>ba</i>	<i>ta</i>	<i>duo</i>	<u><i>cheng sui</i></u>	<u><i>kuai</i></u>	(<i>V</i> + <i>cheng</i> (become) + NP)
	BA it	cut		become broken (into pieces)	chunk	
				‘[Someone] cut it into chunks.’		

36c *ba ta duo de hen xi* (V+*de*-construction)

BA it cut ADV very thin

‘[Someone] cut it into very thing strings.’

All the exemplified BA-sentences (see 36a-c) contain the verb *duo* (chop) with the same sense.

These exemplified BA-sentences all classified as resultative BA-construction. Yet, their results are linked to different grammatical units (see 36a-c). Their result Z-XPs are expressed by the resultative verb *sui* (broken) in 36a, by the postverbal phrase *cheng sui kuai* (become broken chunks) and by the *de*-construction *de hen xi* (very small) in 36c.

The Chinese resultative BA-construction also demonstrates its complexity in various choices of the object. Such phenomena bring troubles to the construction mechanism proposed by Goldberg (1995). I will discuss this problem in Section 4.6.

(3) Caused-transfer BA-construction. Chinese BA-construction has a caused-transfer type. However, such caused-transfer conceptual content can be linked with three syntactic structures – i.e. a syntactic structure with BA (see 37a) a BA-less structure with the final patient (see 37b) and a BA-less structure with the final receiver (see 37c). All the three caused-transfer sentences convey the message that someone sent the towel to the kid.

37a *ba mao-jing song gei hai-zi*

BA towel send give children

‘[Someone] gave the towel to children.’

37b *song gei hai-zi yi-tiao mao-jing*

Send give children one towel

‘[Someone] gave the towel to children.’

37c *song yi-tiao mao-jing gei hai-zi*

Send one towel give child

‘[Someone] sent a towel to the children.’

Thus, Chinese caused-transfer has three alternating syntactic structures, while English has merely dative-ditransitive alternation (see 38a and 38b).

38a Someone gave some towels to them.

38b Someone gave them some towels.

4.5.2 Mismatch BA-construction

Mismatched verb-construction relations (Goldberg 1995) can serve as evidence for the independent status of construction. Chinese has many BA-constructions containing the mismatched relations between verbs and their constructions. Example 39a, for instance, conveys the message that I sat every day for my work and my back bent as a result.

39a *wo wei mei-ri de gong-zuo ba bei zuo wan le*
 I for everyday's work BA back sit bent PAR
 'I bent my back in keeping sitting for my everyday work.'

39a is a resultative construction which contains the main verb *zuo* (sit) followed by the resultative postverb *wan* (bent). The meaning of the verb *zuo* (sit) is integrated into the resultative construction in which the verb *zuo* (sit) licensed. The integration is formally represented in 39b.

39b Sem	CAUSE-BECOME	< agent	patient	result	>
R: instance	<i>zuo</i> (sit)	< sitter			>
Syn	V	SUBJ	OBJ	RV ¹	

As 39b indicates, there is only one instance of fusion, the fusion of sitter participant with the agent. However, the other two argument roles are contributed by the argument structure alone. The verb semantic structure is not isomorphic with the argument structure of the construction. There is no way for the argument structure as such to be derived from the verb meaning. Instead, Goldberg's fusion model offers an adequate account of such verb-construction mismatch.

¹ RV refers to resultative postverb.

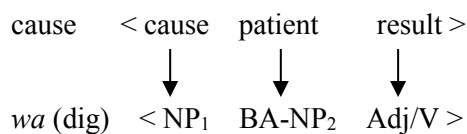
4.6 Remaining problems

The previous sections have demonstrated that the argument structure construction developed by Goldberg (1995, 2006, 2013) do have the vantage points in both the theoretical claims and formalised mechanisms. Some samples from my Chinese BA-construction data also serve as supportive evidence for the fusion model proposed by Goldberg. However, I have also observed that it is very difficult to apply fusion mechanisms to some other BA-sentences. At least three types of remaining problems should be addressed. They are the problems arising from the semantic coherence principle for fusion, including the problems in accounting of unmatched verb-construction relations (see Section 4.6.1), and the problems in accounting of verbless BA-sentences (see Section 4.6.2).

4.6.1 Problem of unmatched BA-construction

As discussed before (see Section 4.4.2), Goldberg's (1995:50) Semantic Coherence Principle says that "[only] roles which are semantically compatible can be fused". The participant role of verb and the argument role of construction are compatible if the former can be construed as an instance of the latter. "Whether a role can be construed as an instance of another role is determined by general categorization principles." (Goldberg 1995: 50). However, I argue that the Semantic Coherence Principle is inapplicable to some Chinese BA-constructions with the following four exemplified BA-sentences (41a-c).

All the four BA-constructions exemplified by 40a-d share the same syntactic structure – i.e. . are resultative constructions with the same verb *wa* (dig). Semantically, they all convey the message that the digging event makes some entity to be involved in a change (cause < cause-patient-result >). Furthermore, they all share the same syntactic structure – i.e. *wa* (dig) < NP₁-BA-NP₂-Adj/V>. The meaning and the form can be linked as illustrated in the following resultative construction.



Example 40a conveys the message that they broke the antique into pieces in digging. Example 40b conveys the message that they broke the spade in digging. Example 40c conveys the message that

their lower-back ached because of digging. Example 40d conveys the message that they attracted the cop over as they were digging.

40a *wan-shang de wa-jue ba gu-dong wa sui le*
 Night POSS² digging BA antique dig broken (into pieces) PAR
 ‘[Someone] broke the antique into pieces in digging at night.’

40b *wan-shang de wa-jue ba tie-qiao wa duan le*
 Night POSS digging BA spade dig broken PAR
 ‘[Someone] broke the spade in digging at night.’

40c *wan-shang de wa-jue ba yao wa teng le*
 Night POSS digging BA lower-back dig pain PAR
 ‘Their lower-backs are painful because of digging at night.’

40d *wan-shang de wa-jue ba jing-cha wa lai le*
 Night POSS digging BA cop dig come PAR
 [Someone] attracted the cop over as they were digging at night.’

The semantics of the grammatical objects in 41a-d are listed as follows:

- 41a *gu-dong* (antique— the thing is looked for in digging)
- 41b *tie-qiao* (spade— digging instrument)
- 41c *yao* (the lower back—the body part of the digger)
- 41d *jing-cha* (cop— distant relevant role)

None of the roles listed in 41b-d can fuse with any argument role of the resultative BA-constructions illustrated in 40a-d. Thus, the MFR (Minimal Fusion Requirement) is violated. In this sense, Goldberg’s Semantic Coherence Principle and the fusion mechanism left these BA-sentences unsolved. In such sentences, the verb semantics is not matched up with its

² POSS designates a possessive marker.

construction semantics. I call such BA-sentences as unmatched BA-sentences.

One thing is for sure that unmatched BA-sentences contain no fused elements. Such unmatched BA-sentence even has its own initial NP as topic. Example 42a, for instance, is a resultative construction and its main verb *shui* (sleep) is followed by the resultative word *ruan* (soft). This BA-sentence conveys the message that sleeping on the bed will make the sleeper listless.

42a *chuang hui ba shen-zi shui ruan* (CCL)
 Bed will BA body sleep soft
 ‘Sleeping on the bed will make the sleeper listless.’

In Goldberg’s constructional analysis, the verb *shui* (sleep) meaning is described as a one-participant semantic structure and the resultative BA-construction, as a three-argument construction. They can be formally represented as 42b.

42b Sem CAUSE-BECOME < agent patient result >
 R: instance *shui* (sleep) < sleeper >

The only participant role sleeper, as illustrated in 42b, has no argument role to fuse with. Thus, this unmatched BA-construction violates the MFR (Minimal Fusion Requirement), although the BA-sentence has its own topic NP and remains acceptable. In this sense, the fusion mechanism is inapplicable to Chinese unmatched resultative BA-constructions.

For the same reason, the fusion model is unable to account for the unmatched caused-motion BA-construction as illustrated in 43a. This exemplified BA-sentence conveys the message that at the second aim, the shooter pulled the trigger and the bullet flew out of the gun.

43a *di-er-ci miao-zhun cai ba zi-dan kou chu-qu*
 The second aiming just BA bullet pull out
 ‘At the second aiming, [the shooter] pull [the trigger to cause] the bullet out.’

This BA-sentence is analysed as a caused-motion BA-construction. The verb *kou* (pull) in this

sentence specifically means to pull the trigger, although the trigger is unexpressed (see Structure 43b). Neither the puller participant role nor the trigger participant role can fuse with any argument of the caused-motion construction as illustrated in 43b.

43b Sem CAUSE-MOVE < cause theme goal >
 R: instance *kou* (pull [the trigger]) < puller trigger >

Again, it is an example of unmatched BA-construction with no verb-construction fusion available, but the BA-construction is perfectly acceptable.

4.6.2 The problem of verbless BA-construction

The more surprising evidence against the fusion model I observe in my data is that BA-constructions may contain no predicator verb. In other words, the predicator slot of such BA-construction remains unfilled. The example 44, for example, conveys the message that what can he do to me. The sentence actually implies that he cannot do anything to harm me.

44 *ta neng ba wo zen-yang* (CNC)
 He can BA I how
 ‘What can he do to me?’

In 44, the BA-marked object is followed by the interrogative pronoun *zen-yang* (how). There is no way whatsoever that this interrogative pronoun can be interrupted as the main verb. Nor can it be categorized as a verb. Sentence 45 is another example of verbless resultative BA-construction. It conveys the message that someone did something and he lost another half as a result.

45 *ba ling yi-ban mei le* (from Beijing TV ‘healthy hall’ 10th Dec. 2015)
 BA other half no PAR
 ‘[Someone did something] and [he] lost another half as a result.’

In 45, what immediately follows the BA-marked NP is the adverb *mei* (no). Since both the exemplified BA-sentences contain no verb, there is no way the verb-construction fusion is possible.

Nor can lexicalist approaches be applicable. I will discuss the possible solution to this problem in Chapter Six.

In this line of argumentation, I even argue that if the verb-construction fusion is unacceptable to Chinese unmatched BA-constructions, then the weak compositionality that Goldberg (1995) argues for is no longer adequate. Thus, some further revision is indispensable.

4.7 Summary

Chinese BA-constructions have many types of variants. Even though, it is implausible to posit two distinct senses of the same verb form for different variants. Some ‘verb senses’ created through lexical rules in alternating BA-constructions, as well as mismatch BA-constructions, are inadequate. Thus, lexicalist approaches are inapplicable to these Chinese BA-constructions.

Argument structure constructions are described in a three-level hierarchy, with the skeletal construction at the top, the construction with specific verbs at the middle and the substantive construction at the bottom. The fusion model by Goldberg (1995, 2006) is applicable to many Chinese mismatch BA-constructions. Her working framework also leads to the recognition of the basic BA-constructions reflecting the human experiences, such as caused-motion construction, resultative construction and ditransitive construction. Chinese has three similar BA-constructions, such as the caused-motion BA-construction, the resultative BA-construction and the caused-transfer BA-construction.

Constructions can also be classified according to the verb-construction relations. Goldberg rightfully argues that her constructionist approach offers an account of mismatched verb-construction relations more adequate than lexicalist approaches.

However, the argument structure construction framework also has its own problems in handling Chinese BA-constructions. Firstly, Chinese has rich in choices of the BA-marked object. In alternating BA-constructions, the Semantic Coherence Principle needs revision. Secondly, Chinese has unmatched verb-construction relations in BA-constructions. In such BA-constructions, the verb meaning is not semantically matched up with the constructional meaning. The fusion mechanism, therefore, is inapplicable to the unmatched BA-constructions. Thirdly, a similar drawback also exists in the verbless BA-constructions. Since there is no predicator verb, no verb-construction is possible. All the three types of drawback demonstrated in the BA-construction analysis indicate that the fusion mechanism proposed by Goldberg (1995) is inapplicable to some

Chinese BA-constructions.

Since the argument structure of construction linked with the surface syntactic structure has to be preserved in the analysis, the possible area of revision I will explore is the verb semantic frame. I argue in this thesis that the new adequate semantic frame should contain the encyclopaedic knowledge richer than that of the verb semantics frame. To do so, I will explore, first of all, some versions of semantic frames in Chapter Five.

5 Semantic frame approaches

5.1 Introduction

As discussed in Chapter Four, Goldberg's fusion model gains some advantage over lexicalist approaches in treating Chinese BA-constructions and mismatch BA-constructions in particular. As Goldberg (1995) convincingly argues, the argument structure construction grammar with its fusion model offers an adequate account of the constructions containing the mismatched verb-construction relations. However, the fusion mechanisms set up in the integration view still has some descriptive shortcomings in applying to Chinese unmatched and verbless BA-constructions.

I adhere to the constructionist tenet that construction is independent. I have also observed that the argument roles represented in Goldberg's (1995) fusion model are all the overt semantic units which are linked with syntactic units in the relevant syntactic structure. The problem is that the verb semantic frame contains no participant role possible to fuse with any argument roles since no matched-up verb-construction relation is possible in an unmatched BA-construction. Since no predicator verb exists in a verbless BA-construction, no verb semantic frame exist, let alone any verb-construction relation. Thus, the possible area the problem dwells is in the verb event frame and its integration into the skeletal construction. Following this line of argumentation, I will explore various versions of verb semantic frames to seek for some possible solutions for the remaining problems of the BA-constructions under question.

In Goldberg's (1995) analysis, the verb event is described as a semantic frame proposed by Fillmore (1975, 1977a, 1977b, 1982, 1985a). The verb semantics described as a verb semantic array is encyclopaedic knowledge in nature. Yet, many cognitive linguists believe that encyclopaedic knowledge serves as the background knowledge for understanding linguistic units, such as words, phrases and sentences. I discuss this view in Section 5.2.

In this chapter, several versions of semantic frames are discussed. I mainly divide them into two groups. Since the event frame proposed by Talmy is unique and closely related to the model that I am developing (see Chapter Six), I will separate Talmy's version from others. Section 5.3 discusses the versions of semantic frames other than Talmy's version. Section 5.4 discusses Talmy's event frame. The remaining problem of Talmy's version of event frame will be discussed in Section 5.5.

5.2 Modeling background knowledge

Cognitive linguists propose that linguistic units are understood within some bigger background knowledge. Cognitive linguists hold the view that the background knowledge accessible from linguistic expressions is encyclopaedic in nature. Such background knowledge is represented in various versions with different names. They include Langacker's (1987) domain/base, Lakoff's (1987) **Idealized Cognitive Model**, Fillmore's (1975, 1977, 1982, 1985a) **frame** and Talmy's (2000) **event frame**. It is very reasonable for Evans and Green (2006) to position all of their representations in the realm of encyclopaedic semantics.

Lakoff (1987) strongly contends that the knowledge associated with language and represented in the **Idealized Cognitive Model** is often the conceptualisation of embodied experience. A similar term used by Langacker (1987; 1991; 2008) is **domain**. To Langacker, encyclopaedic knowledge can be represented as basic domains and abstract domains, which correspond to Fillmore's (1975, 1977, 1982, 1985a) **frame**. Langacker (1987, 2008) outlines two aspects of conceptual domains. He contends that conceptual domains neurologically have **sensory-motor base**. He also emphasises the **profile-base** configuration in the analysis of construal of conceptual domains. Fillmore's (Fillmore 1975, 1977, 1982, 1985a; Fillmore and Atkins 1992) **frame semantics** is the representation of encyclopaedic knowledge evoked by the input of the linguistic expression in the cognitive process of interpretation. Another very interesting notion relevant to my discussion is Talmy's (1996, 2000) **event frame**. In the study of cognitive frames, Talmy focuses and explores conceptual structuring interacting with various windowing and gapping organisations.

The following parts of this chapter further explore both the **semantic frames** (Fillmore and his collaborators in section 5.3) and **event frames** (Talmy 2000 in section 5.4). These models offer some help to the account of Chinese BA-constructions. Yet, they are also confronted with various problems, which are worth discussing.

5.3 Semantic frame

Frame semantics, a theory of meaning, is developed by Fillmore (1975, 1977, 1982, 1985a). It links the linguistic representation with the encyclopaedic knowledge which is gained through the interaction with the outside world. To put it in another way, the encyclopaedic knowledge is manifested through the cognitive structure. The association between such knowledge and relevant

linguistic representations is captured by frame semantics.

A **semantic frame** mainly represents the result of understanding linguistic forms (Fillmore 1985: 235). In other words, a specific semantic frame contains a coherent structure of relevant concepts. In the process of understanding a concept evoked by the linguistic input, it is necessary to understand the entire relevant semantic frame. The whole frame of the associated coherent concepts is evoked via the gestalt effect. In cognitive processes, the semantic frame also serves as the background knowledge based on which a particular linguistic input is interpreted. In all, the relevant background knowledge can be viewed as the semantic frame, while the concept(s) directly evoked by a linguistic expression is known as the profile of its frame.

Semantic frames are relevant and helpful to the study of Chinese BA-constructions since the semantic frame can be described in the following three aspects. Firstly, a semantic frame represents encyclopaedic knowledge (see Section 5.3.1). Secondly, such a frame of encyclopaedic knowledge is reasonably said to have a figure-background or profile-frame organisation (Langacker 1987) (see Section 5.3.2). Thirdly, in the construal operation, a semantic frame can be construed differently in deployments of perspective, distributions of attention and force-dynamic patterns (see Section 5.3.3). Since force-dynamic patterns have already been discussed in Chapter Three, this chapter brings attention to the perspectives, as well as distributions of attention (see Section 5.3.4). Besides, I choose two important types of frames as the case study: frames of scene (see Section 5.3.4) and frames of alternative sentences (see Section 5.3.5).

5.3.1 Frame as encyclopaedic knowledge

The semantic frame is a web of encyclopaedic knowledge extracted from experiences. The encyclopaedic knowledge consists of various concepts. These concepts may be framed as a dynamic sequence of events. In other words, a frame consists of a sequence of events. ‘A birthday party’ frame, for instance, contains a sequence of events, such as buying gifts, wearing birthday clothes, blowing out the candles, singing birthday songs and so on.

A frame of encyclopaedic knowledge must be coherent. It is reasonable to say that concepts constituting human knowledge must be coherent and hence, normal speakers can speak coherently. The concepts composed to make up the encyclopaedic knowledge, therefore, must be coherent. Such coherent encyclopaedic knowledge facilitates the understanding of the linguistic expressions.

Some portions of the relevant encyclopaedic knowledge function as the foreground which is cognitive salient; while others as background. For example, to understand the diameter, a person needs to comprehend the circle. That is, the concept of a circle is the background encyclopaedic knowledge for understanding the diameter. Since the encyclopaedic knowledge is coherent, both of the backgrounded and the foregrounded encyclopaedic knowledge must be coherent (Fillmore, 1977, 1982, 1985a; Croft and Cruse 2004: 17).

Furthermore, a frame, as a body of encyclopaedic knowledge, has its internal organisation. The frame elements differ in the cognitive saliency. Their differences are well captured by the profile-frame organisation (see Section 5.3.2).

5.3.2 Profile-frame organisation

A frame of coherent encyclopaedic knowledge includes the concept(s) of linguistic input. The concept symbolised by the word in question is said to be **profiled** (Langacker 1987; Croft and Cruse 2004: 14-15). To cognitive linguists, a profiled concept is insufficient to define a word meaning. A word is understood with a base or frame of many related and coherent concepts (Langacker 1987). This base of coherent concepts is understood as a conceptual frame (Fillmore 1985).

To understand FOOT, for example, one has to understand BODY and LEGS. All of these concepts are coherently connected to form a complex frame for understanding even a smaller body part as TOE. This frame is very necessary to determine the acceptability or ‘semanticality’ of sentences illustrated by Examples 1a-c.

1a His toes have been cut off.

1b His toes have been cut off from his feet.

1c #His toes have been cut off from his hands.

The semantic frame of toe includes the concept of foot. To understand the word ‘toe’, the frame together with the concept <foot> is evoked. In other words, the profiled concept toe cannot be

properly understood until it is put into the foot frame. The different acceptability of these 1b and 1c can be well accounted for by the background knowledge containing the metonymical relation between toes and its semantic frame. 1a is acceptable because toes are metonymically related to feet. Therefore, it is truly possible that toes can be separated from the foot of which it is a part. Example 1c is not acceptable because such metonymical relation does not exist between toe and hand. In other words, the concept of hand cannot serve as the frame for TOE.

Since our encyclopaedic knowledge comes from the interaction between the human language and the world in which human beings niche. Human has the ability to generalise things and classify them with their features as a measurement (Eleanor Rosch and her colleagues in the 1970s, Lakoff 1987, Katz 1972). Therefore, it is reasonable to assume that encyclopaedic knowledge is not random, but highly structured. It is said to be chunked into a frame of profile-frame organisation. In turn, the frame can be instantiated by language. We take the word ‘foot’ as an example. When people hear the word foot, its semantic frame is activated, which in turn activates the legs frame, the body frames, and so on. According to the context and the perspective of the addressee, different profiling can be displayed through language. In other words, the speaker can choose different frame elements as the salient concept and overtly expressed it.

5.3.3 Frame and construal operations

The frame is designed to represent a body of world knowledge accumulated through human experiences with the outside world including interpersonal communication. An experience is said to be framed for communication. Therefore, it is reasonable for us to contend that the way people frame an experience is a matter of construal (Croft and Cruse 2004: 19). Since frame is a mechanism framing a body of world knowledge via language, it must be conceptual-semantic in nature. That is, a body of world knowledge is linguistically formed into substances of linguistic meaning. Croft and Cruse (2004: 40) claim that “framing is pervasive in language” and any linguistic input should evoke a certain semantic frame. To them, the conceptualising process of framing can be accounted for (at least partly) as construal operations of various kinds.

In construing a frame of concepts, a particular perspective is chosen. By choosing a perspective it is meant that a particular frame element is chosen to serve as the starting point of the information conveyance. In a complex frame, such as the Trade Commercial Transaction Frame

(see Section 5.3.4), either buyer or seller can be chosen as the topic (i.e., the starting point of the information), as illustrated in 2 and 3. Example 2 conveys the message that Ma-yun sold that house; Example 3 conveys the message that I bought the land.

2 *ma-yun ba na tao fang-zi mai¹ le* (CCL)
 Ma-yun BA that QUA² house sell PAR
 ‘Ma-yun sold that house.’

3 *wo ba di mai le xia-lai* (CCL)
 I BA land buy ASP down
 ‘I bought the land.’

The seller *Ma-yun* in 2 and the buyer *wo* (I) in 3 are chosen as the topic or starting point of the information, which is usually realised as grammatical subjects.

The profile-frame relations, as well as construal operations of frame, can be understood as an internalised organisation of encyclopaedic knowledge for language understanding. This frame representation of organised encyclopaedic knowledge can be applied not only to lexical items but also to clauses and sentences. The following section demonstrates their application to sentences associated with a single scene.

5.3.4 Frame of scene

The frame can be used to model the world knowledge associated with argument structure (Fillmore and Atkins 1994; Ibáñez 2006:1). Fillmore famously presents the commercial transaction frame, accounting for all the possible sentences denoting various commercial trade events (Fillmore 1977b). The commercial transaction frame can be evoked by various verbs and be realised as different sentences, expressing various acts of commercial transaction.

Complex as commercial trade transaction can be, this semantic frame is able to offer a rather general mechanism to account for all the possible transaction events. In the frame semantics

¹ The Chinese counterparts of *buy* and *sell* have the same sounds [mai], yet, they have different word tones. The word, ***mai*** (**buy**), as illustrated in Example 5, has a fall-rising tone and is written in Chinese Pin-yin as ***mǎi*** and the word, ***mai*** (**sell**), as illustrated in Examples 4 and 10, has a falling tone and is spelt as ***mài***.

² QUA designates quantifier.

analysis, the commercial transaction frame, at least, includes buyer, seller, goods and money. The sentences semantically associated with the commercial transaction situations can have different verbs, such as buy, sell, pay, spend, charge and cost. Each verb evokes different portions of the frame. In return, the activation process continues to reach other elements to eventually allow the whole semantic frame to be activated. For example:

4 John bought a book from her for 5 pounds.

5 She sold the book to John for 5 pounds.

Both the verbs of Examples 4 and 5 evoke the same commercial transaction frame. However, each verb has its own distinctive topics. The verb bought, as illustrated in Example 4, foregrounds buyer and goods, and backgrounds seller and money. The verb sell, as illustrated in Example 5, foregrounds seller and goods, and backgrounds buyer and money.

Similar differences also exist in Chinese BA-constructions illustrated in 6 and 7. Example 6 conveys the message that someone bought it back. Example 7 conveys the message that he sold this patent to a company.

6 *you-ren ba ta mai hui-qu le (CCL)*
 Someone BA it buy back PAR
 ‘Someone bought it back.’

7 *ta ba zhe ge zhuan-li mai gei yi jia gong-si (CCL)*
 He BA this QUA patent sell give one QUA company
 ‘He sold this patent to a company.’

The verb *mai* (buy) in Example 6 foregrounds buyer and goods. The element buyer is realised as the grammatical subject and the element goods is realised as the grammatical object. The verb *mai* (sell), as illustrated in example 7, foregrounds seller and goods. The commercial transaction semantic frame evoked by the verbs serves as the background knowledge necessary for

understanding the sentences.

It is very interesting to explore the ways to understand these examples illustrated above. In the process of understanding, different verbs, topics and foci evoke the same trade frame as such. I have observed that the foregrounded elements of each exemplified sentence constitute merely a portion of the whole frame. The remaining part of the unprofiled elements is invoked in turn by the evoked ones of the same frame. The frame, therefore, has some gestalt effect in its cognitive process of understanding.

The formalism of the commercial transaction frame, as we described above, offers a very economical mechanism for a fairly general description of all the possible commercial transaction events. Such a formal description reduces redundancy in formal representation. The frame as a whole also gives interesting descriptions to the possible relations of various possible verbs and their constructions via the shared frame elements.

5.3.5 Framing alternative clauses

Semantic frames are not only applicable to the cases in which different verbs are associated with the same frame, but also to the cases of alternating sentences. Boas (2003, 2006, 2008a, 2009g, 2011b) and Iwata (2005a, 2005b, 2008) make attempts at the relations between verb classes and their alternating constructions. Their discussion is relevant to the treatment of alternative Chinese BA-constructions in this study.

Frame semanticists view the verb meaning as relational. A verb in a sentence is required to combine with particular kinds of phrases or sentences. This requirement is called **valence** of the verb. In FrameNet, the valence of the verb must be specified in both semantic and syntactic terms (Fillmore, Johnson and Petruck 2003: 236). In other words, the valence of a verb is described as the linking between semantic patterns and syntactic patterns. Alternating sentences are semantically described as various syntactic realisations of the same semantic frame. For example:

8 John gave his student a book.

9 John gave a book to his student.

The verb *gave* in 8 and 9 evokes the same transfer frame elements: donor, theme and recipient (Fillmore, Johnson and Petruck 2003). This transfer frame, at least, has two different syntactic realisations.

Boas even goes one step further by claiming that two different uses of the same verb can be analysed as two different and yet related senses of that verb (Boas 2000b, 2001, 2002b, 2002c, 2013). Boas contends that his verb polysemy view can also enjoy some vantage point in accounting for the relation between verb classes and alternations. To illustrate this descriptive advantage, Boas (2003b) works with two verbs of the load-class – i.e. ***load*** and ***pack***. He sets up two distinctive verb senses for his exemplified verbs. To account for the locative alternation illustrated in Examples 10 and 11, he sets up two senses – i.e. *load*_{motion-placing} and *load*_{motion-filling}:

10 Tom loaded bricks on the truck.

11 Tom loaded the truck with bricks.

The **motion-placing** load is licensed in the caused-motion frame, as illustrated in Example 10 and the **motion-filling** load is licensed in the caused-filling frame, as illustrated in Example 11.

According to Pinker's (1989) classification, both *load* and *pack* fall into the same load-class. However, they have different distributions. The differences can be observed in 12a-f (Goldberg 1995: 178) and 13a-f (Boas 2003b: 35).

- | | | |
|-----|---|-------------------------------|
| 12a | load < loader , container , [loaded-theme] > | |
| 12b | Joe loaded boxes onto the truck. | (locative variant) |
| 12c | Joe loaded the truck with boxes. | (with-variant) |
| 12d | Joe loaded the truck. | (transitive location variant) |
| 12e | ?Joe loaded boxes. | (transitive theme variant) |
| 12f | ?Joe loaded. | (intransitive variant) |

- 13a pack < **packer**, **container**, [**packed-theme**] >
- 13b Lila packed books into the box. (locative variant)
- 13c Lila packed the box with books. (with-variant)
- 13d Lila packed the box. (transitive location variant)
- 13e Lila packed books. (transitive theme variant)
- 13f Lila packed. (intransitive variant)

Boas contends that the verb polysemy analysis and the different profiling analysis together can well account for different construals within the same frame. Boas (2003b: 35) uses different verb senses to account for the distinctions between locative variant (see Examples 12b and 13b) and *with*-variant (see Examples 12c and 13c). In 12b and 13b, the verbs have motion-placing sense, while in 12c and 13c the verbs have motion-filling sense. In other words, the verbs with the motion-placing sense evoke the locative frame, while the verbs with the motion-filling sense evoke the *with*-variant frame. Boas (2003b: 35) also argues that the verb *load* and *pack* do not have the same profiling patterns. The three participants of the verb *load* are all profiled and therefore, they must all be overtly expressed. His analysis well predicts that 12e and 12f are unacceptable. Of the three participants of the verb *pack*, only the *packer* is profiled and the other two are optional and can be deprofiled. The deprofiled participants have no overt expressions. That is the reason that both 13e and 13f are still acceptable.

Similar locative alternation is also possible in Chinese BA-constructions. Yet, the polysemy view is inadequate to Chinese locative alternation. The verb *zhuang* (load), for instance, can occur in both the two alternating BA-constructions (see 14a and 14b). Both the BA-constructions convey the message that someone loaded the water into the bucket.

- 14a *ba shui zhuang ru tong li*
 BA water load into bucket inside
 ‘[Someone] loaded the water into the bucket.’

14b *ba tong zhuang shang shui*
 BA bucket load up water
 ‘[Someone] loaded the bucket with water.’

They have different grammatical objects. The object in 16a is *shui* (water) and that in 14b is *tong* (bucket). Intuitively, the two instances of *zhuang* (load) denote the same meaning, although 14b has the implication that the profiled *tong* (bucket) might be affected. Chinese can have the BA-sentence denoting a motion-filling meaning. However, this resultative meaning is expressed by the result word *man* (full), instead of the main verb (see 14c). Example 14c conveys the message that someone filled the bucket with water.

14c *ba tong zhuang man shui*
 BA bucket load full water
 ‘[Someone] filled the bucket with water.’

Thus, the verb polysemy view is unnecessary for this instance of Chinese locative alternation.

The locative alternation is also found to be associated with the verb *bao* (wrap). Sentences 15a and 15b, for instance, both convey the message that someone wrapped up the feet with a blanket.

15a *ba jiao bao shang mao-zhan* (CCL)
 BA feet wrap up blanket
 ‘[Someone] wrapped up the feet with a blanket.’

15b *ba mao-zhan bao zai jiao shang*
 BA blanket wrap at foot up
 ‘[Someone] wrapped the blanket around the feet’

Intuitively, no semantic difference between the two instances of the verb *bao* (wrap). Both have the same motion-placing sense and neither of them can have the motion-filling sense. The BA-sentence containing both the verb *bao* (wrap) and the result word *man* (full) is semantically odd (see 15c and

15d).

15c **ba jiao bao man mao-zhan*
BA feet wrap full blanket

15d **ba mao-zhan bao man jiao shang*
BA blanket wrap full feet up

Up to this point of discussion, it is certain that the polysemy view is inapplicable to Chinese locative alternation. I discussed the force-dynamic BA-constructions in Chapter Three and proved that the BA-sentences containing the same verb can have quite a few choices of the grammatical object. Some of these BA-sentences cannot be adequately accounted for even with the force-dynamic patterns. Sentences 16a and 16b, for instance, have the same verb *xie* (write). Example 16a conveys the message that writing this article gave me a head-ache. Example 16b conveys the message that someone broke the pen in writing.

16a *zhe-pian wen-zhang ba wo-de tou dou xie zha le*
This article BA my head also write explode PAR
'Writing this article gave me a headache.'

16b *ba bi dou xie duan le*
BA pen also write broken PAR
'[Someone] broke the pen in writing.'

Both the instances of the verb *xie* (write) have the same sense. However, the problem behind these two BA-sentences has nothing to do with the polysemy view or the monosemy view. They are not well accounted for because neither *tou* (head) in 16a nor *bi* (pen) in 16b can be treated as or fused with the patient. Neither *tou* (head) in 16a nor *bi* (pen) in 16b can be found in the semantic frame of the verb *xie* (write). Therefore, the verb frame semantics without being further expanded is inadequate for these alternating BA-constructions.

5.4 Event frame

Talmy's cognitive semantics, I contend, offers some help in seeking a possible solution to the problems of the Chinese BA-constructions. Talmy (2000: 257-405) proposes an attention theory and claims that in a construing process some concepts are given more attention than others. Talmy (2000: 257) sets up a cognitive model within which languages can "place a portion of a coherent referent situation into the foreground of attention by the explicit mention of that portion while placing the remainder of that situation into the background of attention by omitting mention of it." (Talmy 2000: 257). The portions which are foregrounded are said to be windowed, while those which are backgrounded are said to be gapped. The coherent referent situation where the windowing process is taking place is called **event frame** Talmy (2000).

The event frame defined by Talmy (2000: 259) as consisting of "a set of conceptual elements and interrelationships that in this way are evoked together or co-evoked each other ..., while the elements that are conceived of as incidental ... lie outside the event frame." In Talmy's analysis, a causal chain is taken as a prominent example of event frame, while "the geographic locale in which the event occurred, the ambient temperature of the space in which the event occurred, or the state of health of a participant in the event" are not included within an event frame (Talmy 2000: 259).

The notion of event frame by Talmy is very similar to Fillmore's (1982, 1985a) notion of frame applied to an event expressed by a sentence. Yet, Talmy's event frame differs from Fillmore's frame at least in the following three aspects. The conceptual elements of an event frame in Talmy's analysis can be either windowed or gapped (see the detailed analysis in Section 5.4.1). The event frame proposed by Talmy is able to offer an account of a coherent referent scene. Such event frame is formally represented as a complex of sub-events including both the windowed portion and the gapped portion of the event frame (see Section 5.4.2). The background knowledge represented by an event frame is understood to be framed by a sentence. By framing, it is meant that the sub-events are interrelated (see Section 5.4.3). With such event frame in hand, I make a first attempt to seek solutions to the problems of Chinese unmatched BA-construction (see Section 5.4.4).

5.4.1 Windowing-gapping organisations

Talmy's event frame is richer than Fillmore's semantic frame in the sense that the former contains both the windowed elements and the gapped elements, while the latter contains merely the windowed ones. In most cases, any conceptual elements in an event frame can be chosen as either windowed or gapped. In other words, various windowing-gapping organisations can be imposed upon the same event frame to link with different sentences. Sentences 17a and 17b, for example,

17a The ball rolled from the peak along the path down to the valley.

17b The ball rolled from the peak to the valley.

The conceptual content of two the sentences can both be represented as a rolling event frame. This rolling event frame consists of mover, source, path and goal. In 17a, all the three elements of the Source-Path-Goal Schema (SPG Schema) are windowed and explicit expressed. In 17b, the element path is gapped (in Talmy's term). Although the path element is gapped and unexpressed, its meaning is still accessible or recoverable within the entirety of the rolling event frame.

The gapped frame elements are said to be co-evoked by the evoked conceptual elements of the event frame in which both the windowed and the gapped conceptual elements co-occur. This gestalt effect in the cognitive process makes hearers' reading seamless and smooth. Such gestalt effect also happens in a non-linguistic process. If it happens that anyone sees merely the head of a person sitting behind a table, he automatically knows that this person must have a body. The reason that he knows this is not because he actually has seen it. It is simply because his knowledge tells him that a normal person must have a head and a body. In other words, the frame of a human being consists of these frame elements. Any of the 'windowed' elements such as head can evoke the human frame, within which the frame element 'body' can be co-evoked.

The event frame including gapped concepts works well for mismatch sentences. Following Talmy's analysis, any mismatch is a matter of reduced construal. The missing conceptual portion of an expression is still possibly co-evoked within its related event frame. For example:

18a Christian drank his glass dry. (Croft 2010: 331)

The drinking event frame that we can establish for Sentence 18a contains two core elements – i.e. drinker and liquid. In this particular sentence, the drinker is windowed, while the element liquid is gapped. In Goldberg’s (1995) fusion model, this mismatch resultative construction can be formalised as 18b.

18b	Sem	CAUSE-BECOME	< agent	patient	result.goal >
		Drink	< drinker	liquid	>
	Syn		SUBJ	OBJ	OBL

In this mismatch construction, both the patient and the result have no verb participant role to fuse with. The participant role liquid is gapped. The verb semantics can be integrated into the construction via the only fusion between the drinker and the agent. However, the drinker-agent does not intentionally make the glass dry. Instead, he simply drinks up the liquid in the glass and this drinking event leads to the consequence that the glass is empty. In this sense, the gapped concept liquid works to coherently associate drinking with the empty glass.

5.4.2 Sub-event chains

Following Talmy’s analysis, an event frame can be analysed as a chain of sub-events. The semantics of a sentence, thus, can be formally represented as a group of sub-events chained to form a coherent event frame. For example:

19 John broke the window with a thick club.

The event illustrated in Example 19 can be interpreted as John moved the club in the way that the club hit the window and the club then made the window break into pieces (see Figure 5.1).

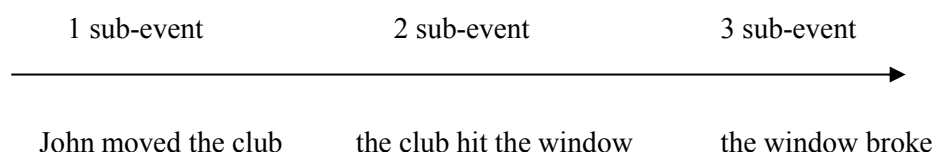


Figure 5.1 Chain of sub-events

Complex event frames can also be applied to causative relations. Such event frames are called *causal-chain event frame* (Talmy 2000: 271). For example:

20 She gunned down the flying bird.

The coherent referent situation illustrated in 20 is interpreted as the sequence of the sub-events as illustrated in Figure 5.2. There exist many other gapped sub-events during the period between the pulling of the trigger and the the falling down of the flying bird. This single sentence expresses even a more complex causal chain as illustrated in Figure 5.2.

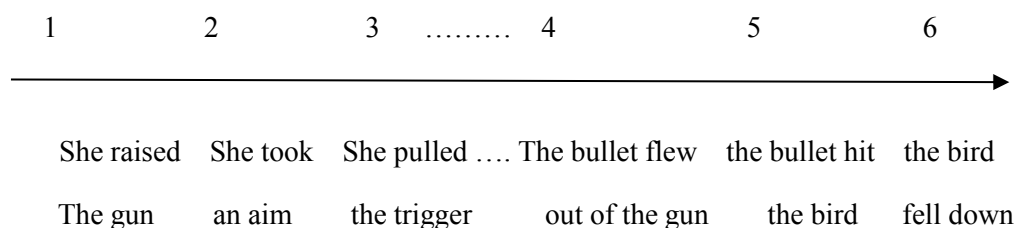


Figure 5.2 Causal chain of shooting

Similar causal chain is also observed in Chinese BA-constructions. Sentence 24, for example, conveys the message that someone hit him on his head to the extent that his head was broken and bleeding.

21 *yong xuan-tou ba ta za de tou po xue liu* (CCL)
 Use shoe-last BA he hit COMP³ head broken blood flow
 ‘[Someone] hit him on his head, broke it and it was bleeding.’

The event frame realised as Example 21 is represented as a composition of at least three sub-events as illustrated in Figure 5.3.

³ COMP: complement marker

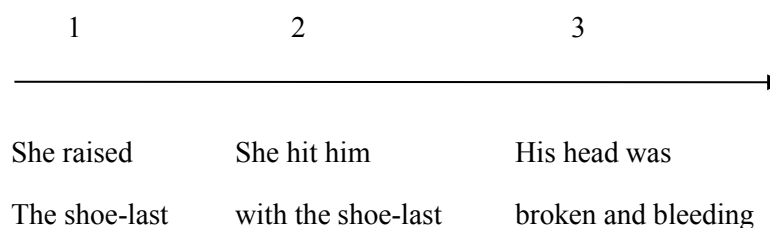


Figure 5.3 Causal chain of hitting

Chinese explicit BA-constructions, such as Sentence 24 illustrated above, are mainly causative constructions. A causative construction is represented as a causal chain with at least a cause sub-event and a result sub-event. In the case of 24, the causal chain of hitting consists of the hitting sub-event as the cause and the broken and bleeding sub-event as the result. In the event frame representation, the first sub-event of raising as illustrated in Figure 5.3 is excluded from the causal chain. In Talmy's (2000) terminology, this raising sub-event is nested. Talmy sets up a special constraint to exclude such nested sub-event from a causal chain.

5.4.3 Immediate causes

The world knowledge conceptualised via a sentence, as discussed in Section 5.4.2, can be understood as a sequence of sub-events. In many cases, sub-events can be causally chained. In other words, a causal chain can link the sub-events together. This chain is construed as an expression which starts with a cause and ends with a final result. In a causal-chain event frame, as Talmy (2000) argues, only the initial agent and the finally resulting sub-event are windowed, while the mediate portion in between is gapped. The windowed cause sub-event must be the immediate cause of the causal chain (Talmy 2000). An acceptable sentence must observe this semantic condition. I name this as immediate cause constraint. For example:

22a I levered the box open. (Talmy 2000: 274)

22b I burned the house down. (Talmy 2000: 274)

The opening event, as illustrated by Example 22a, can be understood as a sequence of sub-events –i.e. the agent I grasped a lever, applied it to the lid of the box, and pried the lid off the box. The burning event, as illustrated in Example 22b, also consists of several sub-events. They are the

lighting sub-event, the capturing-fire sub-event, the consuming sub-event and the destroying sub-event. This sub-event sequence designates the whole burning-down process. That is, the agent (I) had lit a fire and moved it to the house. The house caught the fire from it and then was consumed in the flames. Consequently, the house was destroyed.

The immediate cause constraint proposed by Talmy (2000) can adequately account for the acceptability of 22a as the levering sub-event can be intuitively understood as the immediate cause for the opening of the box. Similarly, in Example 22b, the burning sub-event immediately causes the house to be destroyed. This immediate cause constraint, thus, nicely predicts the acceptability of 22a and 22b. It is also able to make a correct prediction of the following 23a and 23b.

23a *I grasped the box open. (Talmy 2000: 274)

23b *I lit the house down.

The reason that Example 23a and 23b are unacceptable is that their cause sub-events cannot serve as the immediate causes to their respective result. That is, the grasping sub-event is not the immediate cause of the opening result, nor does the fire-lit sub-event serve as the immediate cause of the collapse of the house.

This immediate cause constraint by Talmy (2000) also works well with Chinese BA-sentences, such as 24a and 24b. Example 24a conveys the message that someone pried the brother's box open. Example 24b conveys the message that the northerners burnt down the bridge.

24a *ba ge-ge de xiang-zi qiao kai* (CCL)
 BA brother POS box pry open
 '[Someone] pried the brother's box open.'

24b *bei-fang-lao ba qiao shao hui le* (CCL)
 Northerners BA bridge burn destroyed PAR
 'The Northerners burnt down the bridge.'

Both the action of *qiao* (pry), as illustrated in example 24a, and the action of *shao* (burn), as illustrated in example 24b, can be understood as the immediate causes to their respective result. Therefore, both are acceptable. Also, the immediate cause can predict unacceptability of 25a and 25b. No one can open a box simply by grabbing it as illustrated in 25a. Nor can one destroy a house simply by lighting the fire.

25a **wo ba xiang-zi zhua kai le*
 I BA box grab open PAT

25b **wo ba qiao dian hui le*
 I BA bridge light destroyed PAT

In addition, Chinese allows both *shao* (burn) and *dian* (lit) to associate with the resultative word *zhao* (suggesting an ongoing state) in BA-sentences, such as 26a and 26b. Example 26a conveys the message that someone set the tile-roofed house on fire. Example 26b conveys the message that someone lit the fire and set it on the whole house.

26a *ba wa-fang shao zhao le*
 BA tile-roofed house burn C-ASP⁴ PAR
 ‘[Someone] set the tile-roofed house on fire.’ (CCL)

26b *ba fang-zi quan dian zhao le*
 BA house all light C-ASP PAR
 ‘[Someone] lit the fire and set it on the whole house.’ (CCL)

Both *shao* (burn) of 26a and *dian* (light) of 26b can co-occur with the resultative word *zhao*. Yet, only the verb *shao* (burn) can co-occur with *hui* (destroyed) (see 27a), while the verb *dian* (light) cannot (see 27b). Example 27a conveys the message that someone burned and destroyed the whole house.

⁴ C-ASP designates continuous aspect marker.

27a *ba fang-zi quan shao hui le*
 BA house all burn destroyed PAR
 ‘[Someone] burned and destroyed the whole house.’

27b **ba fang-zi quan dian hui le*
 BA house all light destroyed PAR

The difference between 27a and 27b can also be well accounted for with the immediate cause constraint. The verb *shao* (burn) can co-occur with both *zhao* (continuous aspect marker) and *hui* (destroyed) because burning something can serve as the cause leading to the result that the house captures the fire or that the house was destroyed. The verb *dian* (light) can serve as the immediate cause of the event that the house captures the fire. But the lighting action may not necessarily destroy the house. Therefore, 27a is acceptable and 27b is not.

The mediate portion of the causal chain, I contend with reason, is not always gapped as Talmy argues (2000). The shooting event consists, for instance, of at least the following four sub-events. The shooter raises the gun, takes an aim, pulls the trigger and the bullet flies out from the gun to the target. Consequently, the bullet hits the target. It seems that the only immediate cause for the final result sub-event is the hitting sub-event. However, we find the verb shoot can be licensed into the resultative construction as illustrated in 28.

28 She shot down the black man.

The verb shoot evokes the whole shooting event frame, which contains a sequence of sub-events listed above, including the immediate-cause sub-event of hitting. Can the shooting event be categorised as an immediate cause sub-event?

To solve this problem, I propose a revised immediate cause constraint, which states that the sub-event evoked by a general verb can also be categorised as an immediate cause. In such a generalised shooting situation, a complex of sub-events is compacted into one general sub-event with quite a few sub-event nested. The shooting event is such a compacted sub-event which serves as the immediate cause. This compacted immediate cause adjacently leads the result sub-event that

the black man fell down.

5.5 Remaining problem

In Chinese unmatched BA-sentences, the participant roles of verbs do not match up with the argument roles of their construction. The reason behind this is that Chinese allows the verb semantics to be associated with the construction semantics via mediating gapped concepts. That is, the gapped conceptual portion of the rich encyclopaedic knowledge is required to mediate between the verb semantics and the construction semantics to make the entirety of the encyclopaedic knowledge coherent. Although Talmy's event frame includes the gapped concepts, the problem persists. Sentence 29, for example, conveys the message that someone wore out his shoes in kicking for two days.

29 *liang tian jiu ba xie-zi ti po le*
Two day even BA shoes kick broken PAR
‘[Someone] wore out his shoes in kicking for two days.’

The verb *ti* (kick) is described as a semantic array of kicker and kicked. Neither of these participant roles is matched up with any argument role. Since *xie-zi* (shoe) is excluded from the kicking event frame, there is no way to account for this excluded entity. In this sense, the windowing-gapping organisation, which is imposed on the event frame, fails. Talmy's event frame together with the windowing-gapping organisation is inapplicable to Chinese unmatched BA-sentences. Thus, the model merely including the windowing-gapping organisation is still not enough for Chinese unmatched BA-sentences. The reason that Talmy's event frame is inapplicable to the unmatched BA-sentence is that the event frame suffers too narrow a scope to include the “peripheral” concept *xie-zi* (shoe).

Example 30 also serves as an evidence to support my argument. 30 conveys the message that three days of sitting in the travelling vehicle made our feet swell

30 *san* *tian che-cheng* *ba da-jia -de jiao* *dou zuo zhong le*
 Three day travel-in-a-vehicle BA everyone's feet all sit swell PAR
 'Three days of sitting in the travelling vehicle made our feet swell.'

In this unmatched BA-sentence, the conceptual element of the grammatical object *jiao* (foot) is excluded from the event frame. Since the scope of the event frame is too narrow to include the conceptual element *jiao* (foot), the event frame model is inapplicable to this unmatched BA-construction.

It seems that the expanded version of event frame which includes both windowed and gapped elements is not wider enough to account for the Chinese unmatched BA-constructions. I will turn back to this problem in Chapter Six for an adequate solution.

5.6 Summary

All semantic frame researchers have agreed upon the view that the rich encyclopaedic knowledge is indispensable for understanding sentences. Various versions of semantic frames have their own research focus. Many of them have also attempted to describe grammatical realisations via valence. Boas (2002b, 2003b) even puts forward a verb polysemy view with good reasons. Talmy's (2000) event frame is unique in the sense that the event frame includes both the windowed elements and the possible gapped elements.

However, the polysemy view of the verb by Boas within the frame approach does not work properly with Chinese BA-constructions, particular the alternating BA-constructions. The polysemy view may bring about implausible verb senses. Many alternating BA-constructions have the same verb sense even they differ in the syntactic structure.

Talmy claims that his event frame serves to account for the coherent referent scene. Talmy takes an attention view in which his event frame is said to include both windowed and gapped conceptual elements. With the gapped conceptual elements, his event frame is richly represented as the sequence of sub-events. With this richly expanded event frame, many BA-constructions can be adequately accounted for.

However, Talmy's event frame, just like other semantic frames, suffers from a very limited scope of the encyclopaedic knowledge. Almost all the semantic frames or semantic structures

divide conceptual or semantic elements into core elements and peripheral elements. They usually exclude the peripheral elements from their frames or structures. Any theoretical model, which adheres to this division, as I have argued, will fail at least to account for unmatched Chinese BA-constructions. An adequate frame model for the description of Chinese unmatched BA-constructions has to be established to include not merely the core elements, but also the peripheral ones.

All in all, the semantic frame approaches still left some problems unsolved in the study of alternation, mismatched and unmatched verb-construction relations in Chinese BA-constructions. On the other hand, the event frame with the attention view (Talmy 2000) helps us better understand the issues of the mismatched and unmatched verb-construction relations. But some problems still persist. As we discussed previously, an adequate account for Chinese BA-constructions has to handle at least the unmatched BA-constructions, verbless BA-constructions and the alternating BA-constructions. To explore all the three types of the problematic issues, a revised version of event frame is very necessary. Chapter Six will develop a new semantic event frame based on the versions of frame semantics discussed in this chapter.

6 Cognitive event frame approach

6.1 Introduction

Chinese BA-constructions can be classified into two major types – i.e. explicit type and implicit type. The explicit BA-construction is typically understood as a construction of causation, while in the implicit BA-construction, the affectedness of the grammatical object is vaguely implied. Yet, no adequate account of the implied BA-constructions has been offered.

In most theoretical models, verb event semantics is an important issue of study. Argument structure is either understood as being derived from its verb (in lexicalist approaches) or understood as being generated via the integration of its verb event semantics into the argument structure (in constructionist approaches, such as Goldberg 1995). They all are interested in the verb-construction semantic relations. Goldberg (1995, 2006) rightfully separates the matched verb-construction relations from the mismatched verb-construction relations. Her construction grammar is capable of offering a better account, as discussed in Chapter Four, for mismatch BA-constructions via verb-construction fusion, while lexicalist approaches cannot.

Except for the matched and mismatched verb-construction relations, I have uncovered that Chinese BA-constructions can have unmatched verb-construction relations (i.e., no correspondence between verbs and constructions). In addition, BA-constructions allow some verbless cases as well. These two types of unique BA-constructions cannot be accounted for within the framework of verb-construction fusion (see Chapter Four). Besides these two problem BA-constructions, we also need to find a way to account for these problems in Chinese BA-constructions. They include, at least, the ambiguous BA-constructions (as discussed in Chapter Four), the BA-construction with fictive causation (as discussed in Chapter Three) and some force-dynamic patterns of BA-constructions (as discussed in Chapter Three).

To solve all these problems, I propose a cognitive event frame (CEF) to formally represent the encyclopaedic knowledge of the relevant sentences, instead of verbs. This chapter argues for the plausibility of applying this even richer coherent encyclopaedic chunk represented by cognitive event frame to account for the problem BA-constructions discussed and left unsolved in the previous chapters.

The following part of this chapter consists of three sections. Section 6.2 discusses the major features of cognitive event frame. Section 6.3 explores the important sub-event relations of

cognitive event frame. Section 6.4 makes an attempt at the solutions to the remaining problems concerning Chinese BA-constructions.

6.2 Cognitive event frame

The linguistic models heavily relying on verb semantics, such as the verb semantic frame used in Goldberg's (1995, 2006) construction grammar and the event frame by Talmy (2000) are inapplicable to Chinese unmatched BA-constructions as well as verbless BA-constructions. They also have problems in accounting for some Chinese mismatch BA-constructions and ambiguous BA-constructions.

What makes such models fail is that many Chinese BA-constructions cannot be semantically matched up with their verb semantics. There must be some covert components mediating between the verb event semantics and the construction semantics. Both 1a and 1b down below, for example, convey the message that they ate the meal and something happened as a result.

1a *ta-men ba fan chi wan le*
They BA rice eat finish PAR
'They ate up the rice.'

1b *ta-men ba du-zi chi bao le*
They BA stomach eat full PAR
'They ate and were full.'

1a specifies the result that the rice was eaten up, while 1b specifies the result that they were full. The verb event frame of *chi* (eat) is usually described as a semantic array of eater (they) and food (rice/meal). In 1b, *du-zi* (stomach) is excluded from such a verb event frame. Thus, any models depending on the verb event frame are inapplicable to the BA-construction illustrated in 1b.

To comprehend 1b, we need the background knowledge that in eating, the food goes into the stomach. The eater may feel full if he ate a lot (lots of food in his stomach). Such background knowledge, though covert and unexpressed, must be there to mediate between the verb semantics and construction semantics to make up a coherent cognitive event frame for understanding BA-constructions. In the case of 1b, therefore, the verb event should be expanded at least to include

the element *du-zi* (stomach) so as to mediate between the verb event semantics to the BA-construction semantics. The cognitive event frame I am proposing in this thesis, then, has the coverage of semantics larger than that of the verb event semantics prevailing in most theoretical models (cf. Fillmore 1982, 1985; Goldberg 1995, 2006; Talmy 2000; Croft 2012). My cognitive event frame includes both the overt concepts and the unexpressed concepts mediating between the verb semantics and the construction semantics.

Many cognitive linguists (Fillmore 1975, 1977a, 1982, 1985a; Fillmore and Atkins 1992; Fillmore, et al 2003; Goldberg 1995, 2006; Talmy 2000) have been engaged in the study of the semantic frame as the background knowledge. To Fillmore and his colleagues, the semantic frame is viewed as the background knowledge for language understanding. Following Fillmore's analysis, Goldberg (1995) views the verb semantics as encyclopaedic knowledge, which is said to be integrated into the skeletal construction via fusion.

The cognitive event frame that I am proposing in this thesis is an expanded version of the semantic frame. Following Fillmore and Goldberg's analysis, I view the cognitive event frame as the encyclopaedic knowledge for understanding the relevant sentences. I have argued that the verb semantic frames are not rich enough for understanding at least unmatched BA-sentences and verbless BA-sentences. The limitation of verb semantic frames makes them fail to be integrated into the relevant constructional semantics. Consequently, the fusion model by Goldberg (1995) fails to account for Chinese unmatched BA-sentences and verbless BA-sentences.

Yet, my cognitive event frame has a scope larger than that of the verb semantic frame so as to cover the unexpressed concepts necessary to mediate between the verb semantics and the construction semantics. In this sense, the cognitive event frame serving as the background knowledge is able to understand and explain the whole sentences including unmatched BA-sentences, verbless BA-sentences and other problem BA-sentences.

The cognitive event frame is the formal representation of such encyclopaedic knowledge, serving as the background knowledge for understanding sentences. I call such a frame of encyclopaedic knowledge **cognitive event frame** (CEF in short). CEF is a formal representation unifying various features of the following theoretical views and models, including the frame semantics (Fillmore 1982, 1975, 1977), the event frames of windowing-gapping organisation (Talmy 2000), different construals of conceptual content (Langacker 2008), and the constructions of verb-construction integration (Goldberg 1995, 1997a; Bencini and Goldberg 2000a). Yet, the

CEF differs from all of these views and models in certain aspects. The CEF represents an expanded scope of encyclopaedic knowledge necessary for understanding unmatched BA-constructions and other problem BA-constructions, while other models fail to do so.

To clarify the internal organisation of CEF, I will discuss the following three important distinctive aspects of CEF. They are the richness of CEF (see Section 6.2.1), relations of sub-events in CEF (see Section 6.2.2) and the coherence of CEF (see Section 6.2.3).

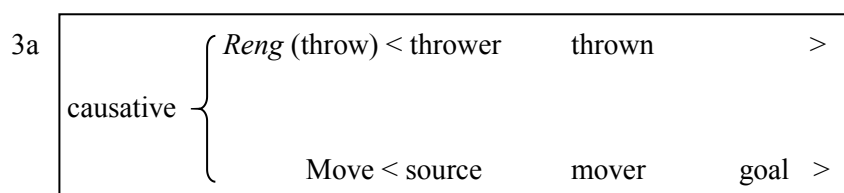
6.2.1 Richness of CEF

Richness of CEF can be better identified in three aspects – i.e. its various windowing-gapping organisations, representation of conceptual chunk larger than verb event semantics and the extended version of verb sub-event. First, just like Talmy’s (2000) event frame, the CEF also serves as the conceptual frame upon which various windowing-gapping organisations are superimposed. A CEF can be construed into various constructions. In this sense, CEF is identified as a rich and general semantic frame. Both Examples 2a and 2b, for instance, share the meaning that the book was thrown away. Example 2a conveys the message that someone threw the books into a box. Example 2b conveys the message that someone threw the books away.

2a *ba shu reng dao le xiang-zi li*
 BA book throw reach ASP box inside
 ‘[Someone] threw the books into a box.’

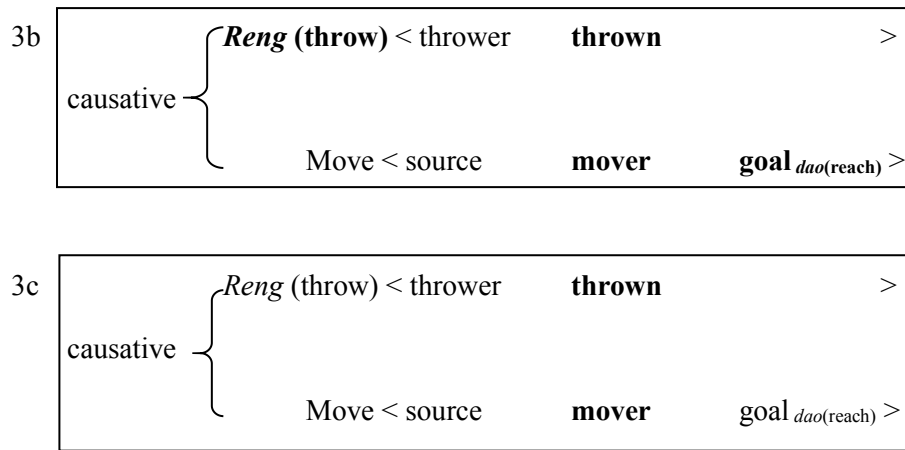
2b *ba shu reng le*
 BA book throw PAR
 ‘[Someone] threw the books away.’

The encyclopaedic knowledge for understanding the both BA-sentences can be formalised as the throwing CEF illustrated in Structure 3.



The throwing CEF consists of two sub-events – i.e. the throwing sub-event and the moving sub-event. The throwing sub-event denotes that the someone (thrower) throws something (thrown); the moving sub-event denotes that something moves from the source to the goal. It is worth noticing that the thrower is bound with the source. The binding is formally represented as the bound elements in the same column (see 3a). Similarly, the thrown is bound with the mover formally represented in the same column (see 3a).

This CEF can be superimposed upon with different windowing-gapping organisations. In the case of Example 2a, the windowed elements include thrown, mover and goal (see the bold-lettered elements in Structure 3b), while in the case of Example 2b, the windowed elements include merely thrown and mover (see the bold-lettered elements in Structure 3c).



The obvious difference between Example 2a and Example 2b is well captured by the differences between the different windowing-gapping organisations superimposed upon the same throwing CEF. As the previous discussion has shown that with the windowing-gapping organisations in hand, we can better account for the same CEF with their alternating even various construing BA-constructions.

Secondly, the CEF, which formally represents the encyclopaedic knowledge of sentence instead of verb. In Goldberg's (1995) construction grammar, the encyclopaedic knowledge is described as the verb semantics. Thus, the CEF is a conceptual chunk, which is larger than the conceptual content (or the encyclopedic knowledge) of verb in Goldberg's (1995) construction grammar. In this sense, the CEF is richer than verb semantic frame in Goldberg's fusion model (1995).

The CEF represents the formal mechanisms for the conceptual semantics of sentences as a

whole, but not merely for verbs. In other words, the CEF is an expanded version of sentence semantic frame since the verb semantic frame mainly focuses on the verb meaning. The CEF represents the conceptual content construed as various sentential constructions (cf. Langacker 2008). Furthermore, unlike Goldberg's 1995 fusion model, the CEF is no longer a frame to be evoked only by a verb. I assume that a verb only evokes a part of the background knowledge represented by the CEF. That is, a verb is not the only stimuli to activate the relevant CEF(s). The CEF can be entirely activated with a co-evoking gestalt effect as well.

The motivation to set up a larger and richer frame than a verb event frame is that some richer encyclopaedic knowledge is required to understand at least the unmatched BA-constructions and the verbless BA-constructions because these two types of BA-constructions cannot be understood, as I argued in Chapters Four, Five, and Six with the limited scope of verb event frame.

To argue for this view Example 4a serves as a very convincing evidence. 4a conveys the message that some football team defeated the Liverpool team, and the Liverpool team was kicked out of the UEFA Cup game.

4a *ba li-wu-pu ti chu le lian-meng-bei* (CCL)
 BA Liverpool kick out ASP UEFA Cup game
 '[A football team] has knocked Liverpool out of the UEFA Cup game.'

Example 4a is a caused-motion BA-construction. It consists of three arguments – i.e. cause, theme and goal. The verb *ti* (kick) in the verb event semantics is described as the semantic array of two participant roles – i.e. kicker and kicked (see Structure 4b). In this exemplified BA-sentence the cause-subject does not appear. Nor does the kicked-object, since what is kicked is football. Both the theme and source argument roles profiled in this caused-motion BA-construction have no participant roles to be fused within the argument structure construction in Goldberg's fusion mechanism (see Structure 4b).

4b *Ti* < kicker kicked >

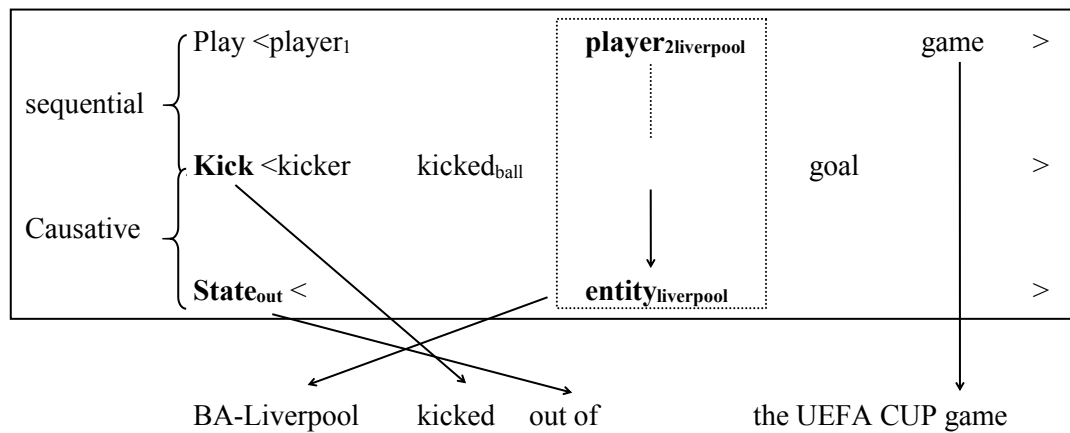
 Cause-to-move < cause **theme source** >¹

¹ For the convenience of comparing Goldberg's construction with my CEF, I put the verb semantics above the

Although the sentence violates the MFR (Minimal Fusion Requirement), the BA-sentence, however, is acceptable. Thus, Goldberg's fusion mechanism fails to account for this unmatched verb-construction relation as illustrated in 4a.

To account for the acceptability of Example 4a, the unexpressed mediating concepts are indispensable. Speakers know that in a football game, two teams play against each other and the team which loses the game will be kicked out of the tournament or loses the qualification to play in the tournament. Although all the information is unexpressed, it is accessible in the football game kicking CEF. With this background knowledge, speakers come to the understanding that *li-wu-pu* (Liverpool) plays the theme role and *lian-meng-bei* (the UEFA Cup game) plays the source role. No doubt that both the theme argument role and the source argument role are contributed by the caused-motion BA-construction. Furthermore, they both are conceptually associated with the kicking concept within the game kicking CEF. The gapped concepts, thus, function to mediate between the verb semantics and the constructional semantics within the bigger whole of the football game CEF. The kicking CEF can be presented as follows (4d cf. 4b),

4d.



Up to this point, to account for the unmatched BA-construction, CEF must be richer than the verb semantic frame in Goldberg's (1995) fusion. CEF, which represents the encyclopaedic knowledge of sentence instead of verb, may consist of two or more sub-events, instead of one verb frame. CEF also contains the gapped concepts (implicit yet accessible), such as *player₂* and the entity elements, to mediate the gap between the verb and the construction. CEF designates the

construction semantics in construction here. I label the windowed elements with bold letters to distinguish them from the gapped elements.

logical linking between sub-events to maintain the coherence of the CEF, such as the consequential link and causative link in 4d.

Thirdly, the verb semantics is represented in the CEF as a sub-event and the verb sub-event is an extended version of verb event which includes both the core and ‘peripheral’ elements. In comparison with Talmy’s (2000) event frame, the conceptual content represented in the CEF is richer than that of the event frame. In Talmy’s (2000) event frame, some concepts are considered as ‘peripheral’ and excluded from his event frame. In the analysis of Chinese Ba-sentences, many such ‘peripheral’ concepts, such as place and time, are profiled and overtly expressed as a grammatical object. Examples 5a and 5b, for instance, both contain such ‘peripheral’ grammatical objects. Example 5a conveys the message that his eyes were dazzled in looking action. Example 5b conveys the message that his arm got tired in the throwing action.

5a *ba yan-jing kan hua le*
 BA eye look dazzle PAR
 ‘[His] eyes were dazzled in looking action.’

5b *ba ge-bo reng suan le*
 BA arm throw tired PAR
 ‘[His] arm got tired in the throwing action.’

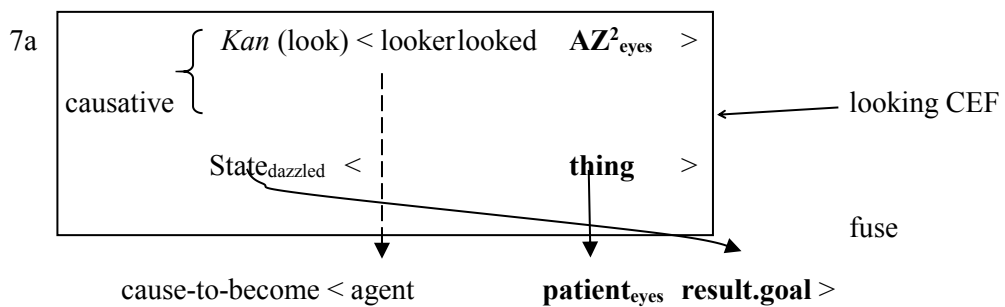
Both the grammatical objects *yan-jing* (eyes) and *ge-bo* (arm) are not included as any participant roles in their respective verb event semantics. They are only provided by their respective resultative BA-construction (see Constructions 6a and 6b). Both the look and the throw participant roles in their respective verb semantic frame are simply unexpressed. Since both the looker-agent in 6a and the thrower-agent in 6b are gapped and unexpressed, no fusion is possible. Thus, Goldberg’s fusion mechanism is inapplicable to both resultative BA-constructions.

6a *Kan* (look) < looker looked >
 Cause-to-become < agent **patient**_{eyes} **result.goal** >

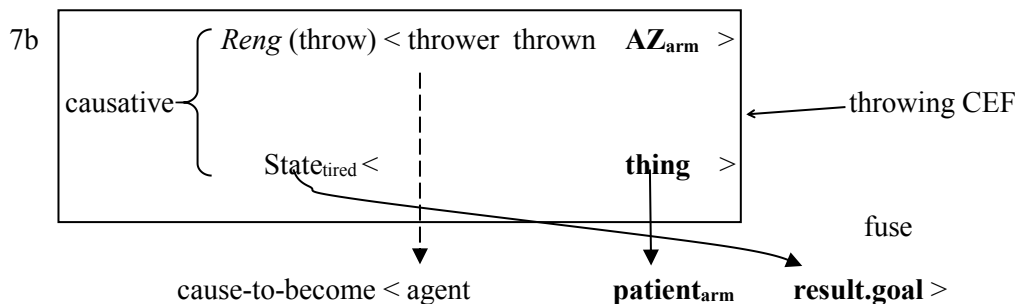
6b *Reng* (throw) < thrower thrown >
Cause-to-become < agent **patient_{arm}** **result.goal** >

I also notice that both the grammatical objects *yan-jing* (eyes) and *ge-bo* (arm) are categorised as peripheral and are excluded from Talmy's event frame. Thus, Talmy's event frame is also inapplicable to them.

In the CEF analysis, neither *yan-jing* (eyes) nor *ge-bo* (arm) is excluded from their respective CEF. Instead, both are included in their extended sub-events associated with the verbs (see CEFs 7a and 7b). The sub-event of the verb *kan* (look) includes the AZ (active zone) of eyes (see CEF 7a) and that of the verb *reng* (throw) includes the AZ of arm (see CEF 7b). In the looking CEF 7a, the AZ_{eyes} is bound with thing. The looker should be fused with agent. Since it is gapped, their fusion is not there and is formally represented with a dotted arrow. While the AZ and the thing are bound to be fused with the patient. The fusion is formally represented as an arrow.



Similarly, in the throwing CEF 7b, the AZ and the thing are also bound to be fused with the patient. The fusion is also formally represented as an arrow.



In sum, the CEF formally represents the encyclopaedic knowledge of sentences. It includes both

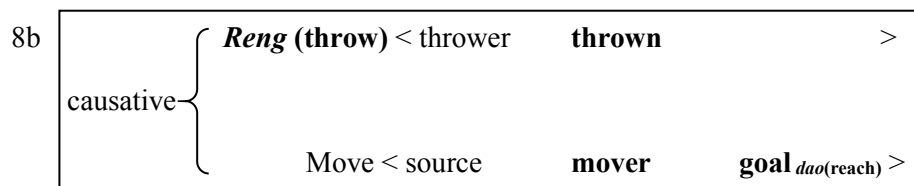
² AZ designates active zone (in Langacker's terminology), which is taken as the part of the actor.

the gapped elements and the extended sub-event of verb.

6.2.2 Sub-events of CEF

In addition to the richness of CEF previously discussed, another feature is that the internal structure of CEF is represented as a frame of coherently related sub-events. Such a formalism adequately represents the coherent referent situation that the relevant BA-sentence expresses. A typical BA-construction consists of at least two sub-events – i.e. cause sub-event and result sub-event. Example 8a, for instance, has two sub-events – i.e. the *reng* (throw) sub-event and the moving sub-event (see Structure8b). This BA-sentence conveys the message that [someone] threw to the basket the peanuts in the pocket.

- 8a *ba yi-dou li de hua-sheng reng dao lan-zi li* (CCL)
 BA pocket inside POS peanut throw reach basket inside
 ‘[Someone] threw to the basket the peanuts in the pocket.’



The throwing sub-event contains two elements: thrower and thrown. The moving sub-event contains three elements: mover, source and goal. Both the thrower and the source in Example 8a are gapped and unexpressed.

In my CEF, gapped sub-events are usually not represented unless without those gapped sub-events the CEF is no longer coherent. That is, the CEF only formally represents the gapped sub-events which are required to make a coherent CEF. In the following section, this coherence issue will be discussed in detail.

6.2.3 Coherence of CEF

Another very important view I hold in building up CEFs is that the encyclopaedic knowledge represented by the CEF must be coherent (cf. Talmy 2000). I assume that a normal human being must have coherent encyclopaedic knowledge for language understanding. Based on this

assumption, the coherent CEF can be represented as coherently structured sub-events. The coherence of CEF in my model can be accounted for with two types of semantic relations. They are the interrelation of sub-events and the binding of frame elements across sub-events. Before going into details, it is necessary to point out that the binding within CEF differs from Goldberg's fusion mechanism. Goldberg's (1995:50) fusion mechanism states that

Each participant role that is lexically profiled and expressed must be fused with a profiled (windowed) argument role of the construction. If a verb has three profiled participant roles, then one of them may be fused with a nonprofiled argument role of a construction.

Yet, the binding in CEF allows much more freedom for the frame elements. The binding has nothing to do with the state of the profiling (windowing and gapping in Talmy's term). Both the windowed and gapped frame elements can be bound. In the CEF approach, binding differs from fusion in the sense that binding happens within a CEF, while fusion happens between the CEF and its construction.

A CEF consists of a set of sub-events which must be semantically related. BA-sentence 9a, for example, conveys the message that Wu-shun rowed the boat to the bank.

9a *wu-shun* *ba chuan* *yao* *dao* *an* *bian* (CNC)
 Wu-shun BA boat row reach bank side
 'Wu-shun rowed the boat to the bank.'

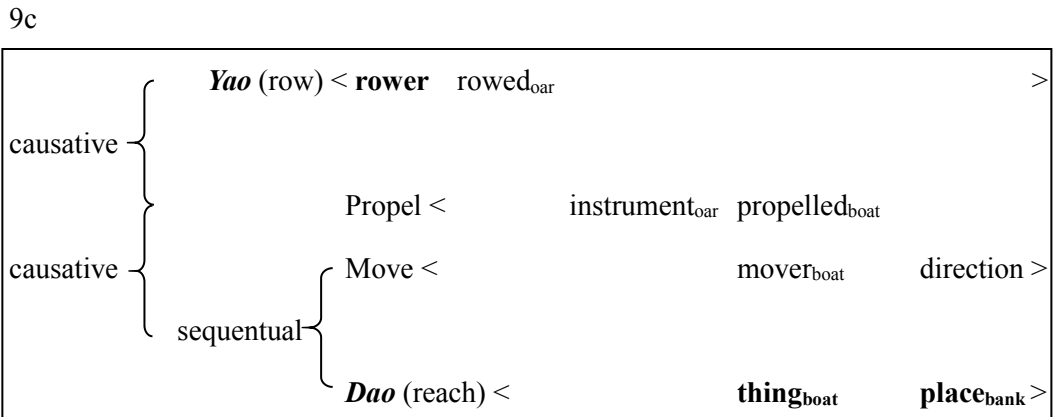
The phrase *yao chuan* (row the boat) in Chinese can be interpreted either as 'to row the boat' or as 'to rock or shake the boat'. Our knowledge accumulated through our experience tells us that to move the boat to the bank, we row the oars of the boat, instead of rocking the boat. Our knowledge, therefore, allows us to choose the 'rowing' interpretation to express that the Wu-shun rowed the oar, the oar propelled the boat, the boat moved towards the bank, and the boat was at the bank. In example 9a, only the rowing sub-event and the reaching (result) sub-event are windowed (explicit), while the propelling and moving sub-event are not. However, without these two gapped sub-events, the clause cannot be accounted for because the missing coherence mediating between the rowing sub-event and the reaching sub-event. Thus, the CEF of 9a should be formally represented as a

sequence of four sub-events as illustrated in 9b.

9b

Yao (row)	< rower	rowed _{oar}	>
Propel	<	instrument _{oar}	propelled _{boat} >
Move	<	mover _{boat}	direction >
Dao (reach)	<	thing _{boat}	goal _{bank} >

The coherence referent scene illustrated in 9a is formally represented in two aspects – i.e. the interrelation of sub-events and the binding of elements across sub-events. The coherence of the CEF is built up with both the windowed elements (in bold letters) and the gapped elements (see 9c). The four sub-events are coherently connected to form a causal chain.



The coherence of the four sub-events is also accounted for with three binds as illustrated in the three columns in 9c. Firstly, the gapped oar in the rowing and propelling sub-events are bound. Secondly, the element, *chuan* (boat) in the propelling and moving sub-events are bound with the windowed element *thing* in the reaching sub-event. Thirdly, the direction element in the moving sub-event is bound with the windowed place in the reaching sub-event. In 9c, three out of the four sub-events contain the binding element *chuan* (boat). These densely bound frame elements are cognitively more salient.

The coherence of this CEF can be understood in the following two ways. Firstly, both the causal chain and the binding across sub-events make this rowing event coherent. Secondly, the propelling sub-event and the moving sub-event, gapped as they are, function to mediate between the initial rowing sub-event and the final reaching sub-event. Without the mediating sub-events, the

initial rowing sub-event and the final to sub-event cannot be coherently associated. In other words, no elements in the *yao* (row) sub-event can be directly bound to any elements in the reaching sub-event. To coherently connect the two, the rowing CEF provides the gapped propelling sub-event and the moving sub-event to mediate between the initial *yao* (row) sub-event and the final *dao* (reach) sub-event.

In many cases the gapped sub-event is not only necessary to mediate between the initial sub-event and the final sub-event, but also necessary to account for the semantic adequacy of sentences. Examples 10a and 10b, for instance, both contain the verb *shuo* (speak). Example 10a conveys the message that someone says something and the first sentence of his speech made everyone stunned. Example 10b expresses meaning that someone said something and his first sentence made the deaf stunned

10a *tou-yi-ju jiu ba da-huo shuo sha le* (CNC)

First sentence already BA everyone speak shunned PAR

‘[His] first sentence has already made everyone shunned.’

10b #*tou-yi-ju jiu ba na-ge long-zi shuo sha le*

First sentence already BA that deaf-person speak shunned PAR

#‘His first sentence spoken to the deaf has already made the deaf shunned.’

Although two sentences have the same verb and the same syntactic structure, they are different in acceptability. 10a is acceptable, while 10b is semantically odd.

Obviously, the two sentences have different grammatical objects. The grammatical object slot of 10a is filled by *da-huo* (everyone) and that of 10b is filled by *long-zi* (deaf). The reason that 10b is abnormal is that a deaf person cannot hear and therefore, he will not be affected by any talk. In the constructionist approach both the sentences are classified as resultative construction and are analysed as Structure 10c:

10c ***Shuo*** (speak) < speaker **speech** >

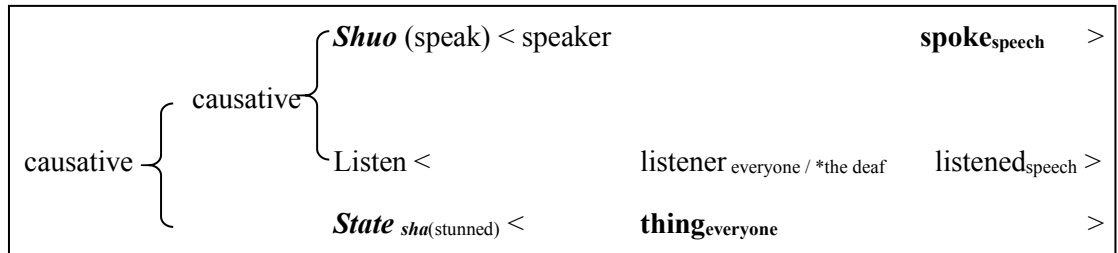
cause-to-become < agent **patient result** >

There are two problems in this constructionist representation. Firstly, since speaker-agent is gapped,

there is no fusion between verb participant roles and argument roles (see Structure 10c). Secondly, the description fails to capture the acceptability difference between 10a and 10b. It fails to tell why 10a is acceptable, while 10b is not.

In my coherent CEF, a gapped listening sub-event is provided to mediate between the *shuo* (speak) sub-event and the *sha* (stunned) sub-event, as illustrated in Structure 10d.

10d



Since *da-huo* (everyone) is a qualified filler for the listener slot of the listening sub-event, the coherence of 10a is maintained and the BA-sentence is acceptable. Since *long-zi* (deaf) is not a qualified filler for the listener slot of the listening sub-event, the listening sub-event is impossible and the coherence is broken. Therefore, 10b is unacceptable.

6.3 Types of relations between sub-events

Sub-events of CEF can be related in various ways. As it was previously discussed, some sub-events can be related to form a causal chain. I also notice that other sub-events are associated with some non-causative relations. There are, at least, two types of non-causative relations are worth discussing. They are sequential sub-event relations and simultaneous sub-event relations. They will be discussed in Section 6.3.1 and Section 6.3.2 respectively.

6.3.1 Sequential sub-events

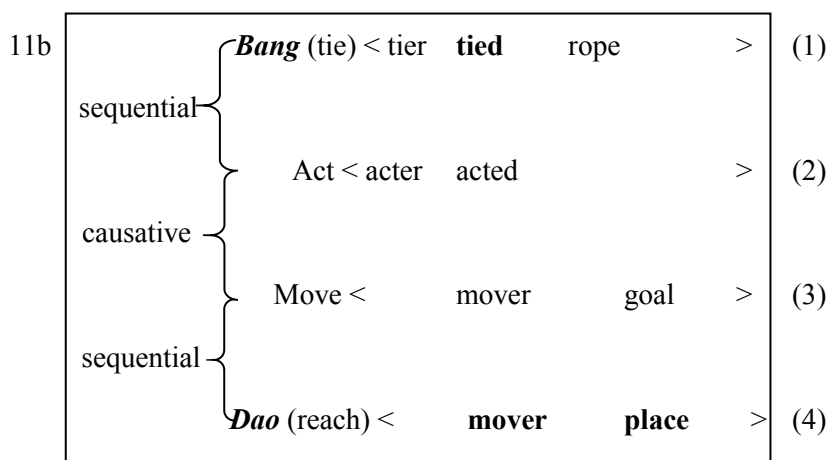
Sequential sub-events do not always form a causal chain. Example 11a, for instance, conveys the message that someone tied up Lu Xiao-feng and took her up to the cliff.

11a *zhi-yao ba lu-xiao-feng bang dao ya shang-qu (CCL)*

Only BA lu-xiao-feng tie reach cliff up-go

‘[Someone] only needed to tie up lu-xiao-feng and took her up to the cliff.’

Its CEF contains a sequence of a tying sub-event, an acting sub-event, a moving sub-event and a reaching sub-event, (see Structure 11b). The four sub-events of the CEF can be described as (1) X ties up Y with a rope; (2) X acts on Y; (3) Y moves to Z; (4) Y reaches Z.



In the four sub-events as illustrated in Structure 11b, the *bang* (tie) sub-event and the acting sub-event are sequentially related. That is, X tied up Y and then did something to Y. Only the acting sub-event and the moving sub-event are causatively related. That is, X did something to Y and made Y to move. The moving sub-event and the reaching sub-event are also sequentially related. That is, Y moved and then reached the place Z. These related sub-events are said to form a coherent CEF.

Although many sub-events can be related to form a CEF, it does not mean that any acting sub-event can be related to a final location sub-event to form a coherent CEF. For example:

12 **ba bei-zi mai dao jia li qu*
 BA cup buy reach home inside go

We may buy a glass and then brought it home. In our daily life, we can have many options to choose after we have bought a glass. Nor is there any causal relationship between the event of buying a glass and the event of the glass reaching home. Usually, a buying sub-event is not semantically followed by a reaching sub-event to form a coherent chunk of encyclopaedic knowledge. In this sense, Example 12 is unacceptable.

6.3.2 Simultaneous sub-events

Besides the sequential relations, sub-events can also be associated in a simultaneous relation. The commercial transaction event frame discussed by Fillmore (1982) can be understood as four such simultaneous sub-events. The frame is composed of a goods-getting sub-event, a money-giving sub-event, a goods-giving sub-event and a money-getting sub-event. These sub-events happen simultaneously to form a commercial transaction CEF, which can be construed as at least the following four sentences (see 13a – 13d).

13a John paid the dealer one million dollars for the car.

13b John bought the car from the dealer for one million dollars.

13c The dealer received one million dollars from John for the car.

13d The dealer sold the car to John for one million dollars.

The CEF is formally represented as 13e with four such sub-events. These sub-events contain the frame elements of buyer/payer, seller/obtainer, money and goods.

13e

simultaneous	{	Goods-getting (buy)	< buyer	bought _{goods}	>
		Money-giving (pay)	< payer	paid _{money}	>
		Goods-giving (sell)	< seller	sold _{goods}	>
		Money-getting (obtain)	< obtainer	obtained _{money}	>

Different construals of this commercial transaction CEF interacts with different windowing-gapping organisations superimposed upon this CEF. The windowed frame elements in Example 13a, for example, include the windowed payer, money, goods and money-obtainer as formally represented (in bold letters) in 13f.

13f

simultaneous	{	Goods-getting (buy)	< buyer	bought _{goods}	>
		Money-giving (pay)	< payer	paid _{money}	>
		Goods-giving (sell)	< seller	sold _{goods}	>
		Money-getting (obtain)	< obtainer	obtained _{money}	>

The same commercial transaction CEF is applicable to similar Chinese BA-sentences. Yet, the windowing-gapping organisations superimposed on the CEF in Chinese are different. Sentences 14a and 14b, for instance, have different windowing-gapping organisations. 14a conveys the message that he sold the camera for four thousand Yuan; 14b conveys the message that he sold the camera to that teacher.

14a *ta BA xiang-ji mai le si-qian-yuan*

He BA camera sell ASP four thousand Yuan

‘He sold the camera for four thousand Yuan.’

14b *ta ba xiang-ji mai gei le na-wei lao-shi*

He BA camera sell to ASP that teacher

‘He sold the camera to that teacher.’

The same commercial transaction CEF as illustrated in 13e upon which the different windowing-gapping organisations are superimposed can be construed differently. The windowed and gapped frame elements of Example 14a can be formalised in Structure 15a.

15a

simultaneous	{	Goods-getting (buy)	< buyer	bought _{goods}	>
		Money-giving (pay)	< payer	paid _{money}	>
		Goods-giving (sell)	< seller	sold _{goods}	>
		Money-getting (obtain)	< obtainer	obtained _{money}	>

The windowed and gapped frame elements of Example 14b can be formally represented in Structure 15b.

15b

simultaneous	{	Goods-getting (buy)	< buyer	bought _{goods}	>
		Money-giving (pay)	< payer	paid _{money}	>
		Goods-giving (sell)	< seller	sold_{goods}	>
		Money-getting (obtain)	< obtainer	obtained _{money}	>

Both the exemplified sentences have the windowed seller and goods. In addition, Example 14a contains the windowed money, while 14b contains the windowed buyer (see CEFs 15a and 15b).

6.4 Advantage of CEF

My CEF is richer than the semantic frame (Fillmore 1982), in the way that CEF consists of several sub-events which are connected with each other through the logical links — i.e., sequential link, simultaneous link and causative link. In such richer CEF, the semantic coherence is well preserved. In addition, CEF is more general in the sense that it is able to well capture the similar conceptual meaning of the possible alternating variants with different profiling.

As it has been observed in the data extracted from the CNC corpus, Chinese BA-constructions have the unmatched construction type and the verbless construction type. In these BA-constructions, no fusion between verb encyclopaedic knowledge and construction semantics as proposed by Goldberg (1995) is possible. Nor any semantic coherence of the fusion is possible. With the richer CEF in my model, either the unmatched BA-constructions or the verbless BA-constructions can be well accounted for with the gapped concepts mediating between the verb semantics and the constructional semantics. In the same way, the semantic coherence between the verb semantics and the constructional semantics is also well preserved.

In my analysis, the background knowledge for understanding BA-sentences is no longer limited within the scope of verb event. Such an expanded semantic frame as CEF is served as an adequate formal representation in solving the problems discussed in Chapter Three, Four, and Five. In this section, I will offer a better account for these problem BA-constructions. I will discuss how the CEF accounts of mismatch BA-constructions (see Section 6.4.1), unmatched BA-constructions

The sneezing sub-event serves as the cause, while the moving sub-event serves as the result. The gapped blowing sub-event and pushing sub-event mediate between this cause sub-event and the result sub-event.

Similar mismatch BA-construction can also be analysed within a rich CEF. The sentence exemplified by 17a, for instance, conveys the message that the big man sat on the chair and the chair collapsed as a result.

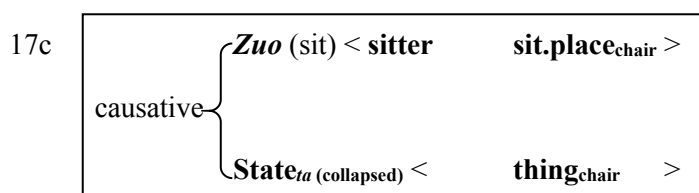
17a *pang-zi* *ba yi-zi* *zuo ta* *le*
 The fat BA chair sit collapse PAR

‘The big guy sat on the chair and made the chair collapsed.’

This BA-sentence contains an intransitive verb *zuo* (sit). In Goldberg’s (1995) analysis the mismatch construction can be accounted for via the fusion between the sitter and the ‘causative agent’ (see Structure 17b). Following her analysis, the verb event contains only one participant role sitter. The sitter is bound to the agent of sitting. However, Sentence 17a does not denote the meaning that sitter sat at any place. Instead, the sitter must be interpreted as sitting on the chair. This decisive semantic detail is missed in Goldberg’s analysis (see 17b).

17b *Zuo* (sit) < sitter >
 cause-to-become < **agent** **patient** **result** >

It is worth pointing out that the sitting action is intentional, while the ‘causative consequence’ is not. The big guy does not intentionally damage the chair by sitting on it. The reason causes the chair collapsed is that the big man sat on it. Therefore, the sitter, big man, is not semantically compatible with the agent without specifying the sitting place. This causal relation can be well captured by the extended sitting sub-event and its causatively related *ta* (collapsed) state sub-event of the sitting CEF (see Structure 17c).

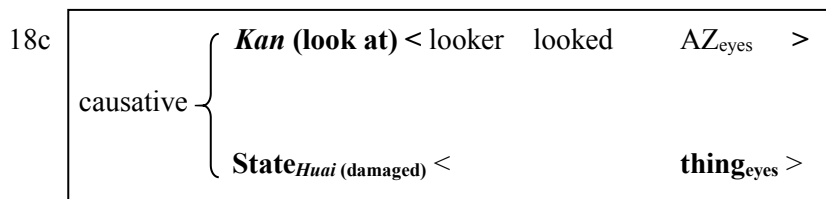


6.4.2 CEF of unmatched BA-constructions

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windowing-gapping organisation of Talmy’s (2000) does not help in this case either because his verb event frame excludes the ‘peripheral’ element *yan-jing* (eyes). Thus, the unmatched BA-construction baffles both the fusion model and the event frame approach.

My CEF offers a better account of the unmatched BA -construction. The reason behind this is that the CEF represents the chunk of encyclopaedic knowledge rich enough to provide necessary mediating background knowledge to semantically associate the verb and the construction. In the looking CEF, a looking sub-event includes not merely the looker element and the looked element, but also the AZ element *yan-jing* (eyes), which is bound with the thing element *yan-jing* (eyes). This extended looking sub-event leads to the resultative state of the participant thing *yan-jing* (eyes) specified as *huai* (damaged) (see Structure 18c).

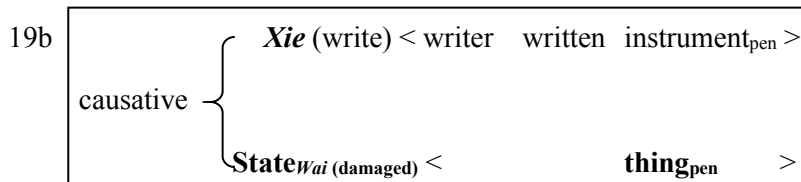


These two sub-events are connected to make a causal chain with the extended looking sub-event as the cause. This sub-event cause is linked with the word *zhe* (this). The extended *kan* (look at) sub-event is also coherently related with the resultative state sub-event via the binding between *yan-jing* (eyes) in the *kan* (look at) sub-event and the thing in the *huai* (damaged) result sub-event (see Structure 18c).

The same type of BA-construction can occur with other verbs. Example 19a containing the verb *xie* (write), for instance, is also an unmatched BA-sentence. This BA-sentence conveys the message that to write in such a way will damage the pen, so be careful.

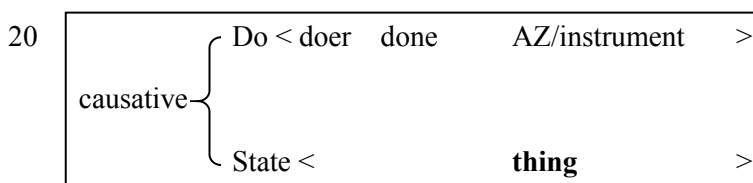
19a *dang-xin* *ba* *bi* *xie* *huai* *le* (CCL)
 Be careful BA pen write damaged PAR
 ‘[To write in such a way will] damage the pen, so be careful’

This BA-sentence is also a resultative BA-construction composed of two sub-events (see Structure 19b).



In the case of the writing CEF, it is the ‘peripheral’ instrument pen that is bound to the thing of the resultative state sub-event (see Structure 19b).

In comparison of 18a with 19a, we observe that both the exemplified BA-sentences have the same resultative argument structure and share the same syntactic structure. Both *yan-jing* (eyes) and *bi* (pen) fall into the participant of AZ or instrument. In BA-constructions, they are bound with the element thing of the resultative state sub-event (see Structure 20).



The reason behind this is that the AZ/instrument can also be affected in an interaction with other elements. To capture this generalised force-dynamic pattern, the *kan* (look) sub-event is able to include the necessary concept of the AZ/instrument (see Structure 20). This AZ is necessary to form the *kan* (look) sub-event and the instrument is a necessary element to form the *xie* (write) sub-event.

The extension of the verb sub-event in my CEF even is allowed to include more ‘remotely peripheral’ element. 21a, for example, is a caused-motion construction with the subject unexpressed. It conveys the message that someone ate so much that his belly became pot-like.

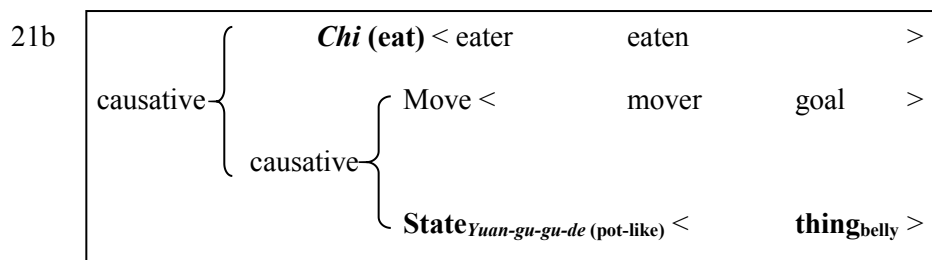
21a *ba du-zi chi de yuan-gu-gu de* (CNC)
 BA belly eat CON⁴ round POS
 ‘[Someone]ate so much that his belly became pot-like.’

In this exemplified BA-sentence, neither the participant eater nor the participant food is fused with

⁴ CON: conjunction

any argument role in Goldberg's sense. Without fusion, this BA-sentence is supposed to be judged as unacceptable. However, this prediction is against native speaker's intuition.

In reality, this BA-construction is acceptable and my CEF provides an adequate account of its acceptability (see Structure 21b).



The coherent eating CEF consists of three sub-events – i.e. the eating sub-event, the moving sub-event and the state sub-event. They are related to form a coherent causal chain (see Structure 21b). The eaten is bound with the mover and the goal is bound to the thing. The whole coherent eating CEF denotes that the eater eats the eaten (food) and the eaten food moves into the goal (stomach) and the thing (stomach) becomes big as a result.

It is more interesting to observe that the same verb *chi* (eat) occurs in a more complicated unmatched Ba-construction (see 22a). Example 22a conveys the message that having free meals provided by your father made him poor.

22a *ba ni-ba chi qiong le* (CNC)
 BA your dad eat poor PAR
 '[Having free meals provided by your father] made him poor.'

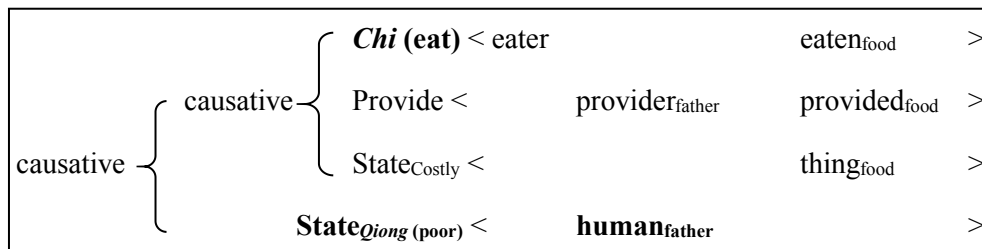
22a is a resultative BA-construction. In a resultative BA-construction, the patient is linked with the grammatical object and is fused with the acted participant. In the case of *chi* (eat) verb, for instance, its patient is usually fused with the eaten participant role. But in Example 22a, the food-provider *ni ba* (your father) cannot be interpreted as the eaten participant role. Nor can it be fused with the patient. Example 22a, then violates the Semantic Compatibility Principle set up by Goldberg (1995) (see Structure 22b).

22b **Chi** (eat) < eater eaten >

cause-to-become < cause **patient** **result** >

In this sense, the fusion model is inapplicable to Example 22a. It is the mediating encyclopaedic knowledge that offers a solution to the problem. The eater's father became poor because the food he provided was costly. The cost of the food the father provided made the father poor. This background knowledge mediates between the eating sub-event and the resultative state sub-event to make the coherent interpretation possible. This mediating portion of the eating CEF may be formalised as the gapped providing sub-event and the costly state sub-event (see Structure 22c).

22c



The coherently related four sub-events as illustrated in Structure 22c are read as the eater ate food; The food was provided by the father. The food was costly, and the father became poor. The providing sub-event is related with the *qiong* (poor) sub-event via the costly state sub-event in a causal relation. It is obvious that no verb participant can be found to fuse with any argument role. Yet, intuitively, the initial *chi* (eat) sub-event can still be coherently associated with the final *qiong* (poor) sub-event via the gapped mediating sub-events (the providing sub-event and the state sub-event) in between. To semantically relate the initial causative verb sub-event with the final result sub-event, the mediating sub-events are indispensable. To account for the coherent referent situation, the CEF is an adequate formal representation.

An unmatched verb-construction relation also occurs in a caused-motion construction illustrated in Example 23a. This caused-motion BA-sentence conveys the message that having taken the aim again, he pulled the trigger and shot the bullet out.

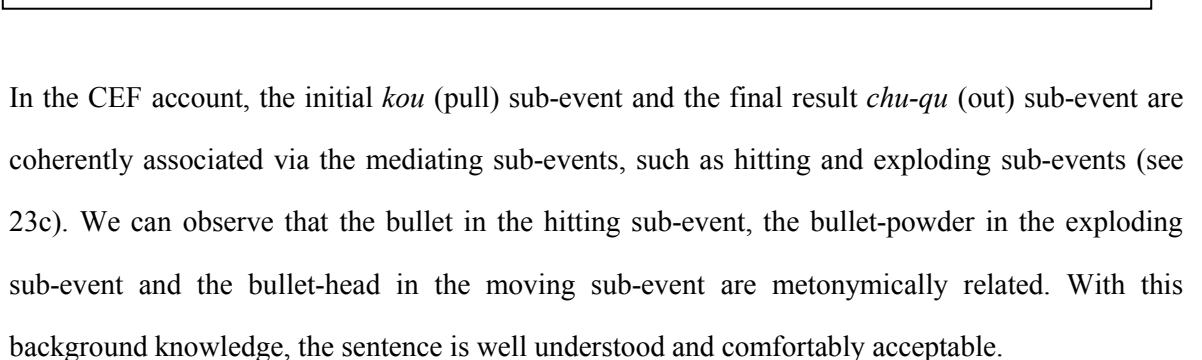
23a *di-er-ci miao-zhun cai ba zi-dan kou chu-qu*

Second aiming only BA bullet pull out

‘Having taken the aim again, [he] pulled the trigger and shot the bullet out’

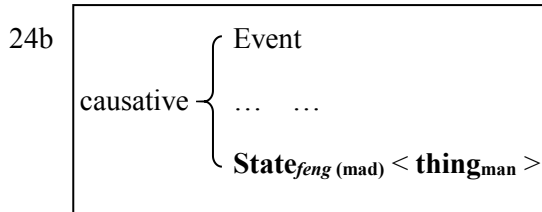
23b *Kou* (pull) < puller pulled >
Cause-to-move < cause theme goal >

In my CEF analysis, the initial *kou* (pull [the trigger]) sub-event and the final *chu-qu* (out go) sub-event are eventually related via the hitting sub-event and the exploding sub-event to make the coherent shooting CEF (see Structure 23c).



sub-event. Since there is no main predicator verb, no verb semantics is possible. Thus, such a verbless BA-construction cannot be well accounted for by the fusion model.

In the CEF approach, the verbless BA-construction is also analysed as a causative CEF, which consists of a cause sub-event and a result sub-event. In the case of verbless BA-construction, the cause sub-event is unspecified and gapped. Example 24a, for instance, the final result sub-event of ‘being mad’ is causatively related with a gapped cause sub-event (see Structure 24b).

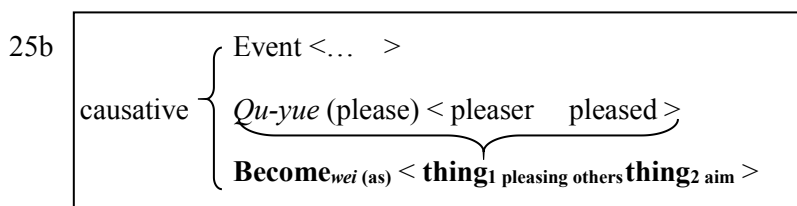


That the resultative postverb *feng* (mad) evokes the CEF containing the causative relation, which is closely associated with the verbless BA-construction. Even the cause is implied, it is reasonable to say that the unspecified and unexpressed cause made the wife mad. Such an account truthfully captures the native speakers’ intuition that that wife’s madness was caused by some covert event.

I have also noticed that some CEF, which represents the encyclopaedic knowledge of verbless BA-construction consists of some mediating sub-event between the cause and the result. 25a, for example, conveys the message that someone took pleasing others as his goal.

25a *ba ‘qu-yue yu ren’ wei mu-biao* (CNC)
 BA ‘please at people’ as goal
 ‘[Someone took] ‘pleasing others’ as his goal.’

The postverbal phrase *wei mu-biao* (as one’s goal) in 25a further specifies goal as ‘pleasing others’. Yet, what causes his goal to be taken is not specified. The unspecified cause can be formalised as the unspecified initial sub-event illustrated in 25b. The result sub-event denotes that the thing₁ is taken as thing₂. The thing₁ is bound with the whole *qu-yue* (please) sub-event (see 25b).

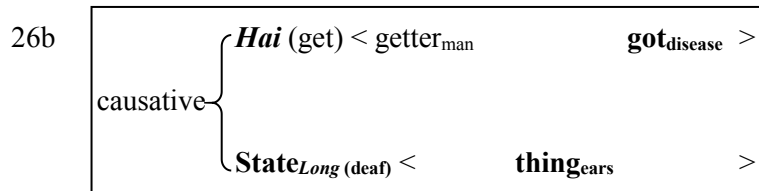


The CEF illustrated in 25b has, therefore, kept its coherence through the causal chain.

Of course, it is not the case that the cause of verbless BA-construction is always gapped. In some other verbless BA-constructions, the cause can be overtly expressed. Example 26a conveys the meaning that the disease he had suffered made him deaf.

26a *hai chang bing ba er-duo long le* (CNC)
 Get QUA illness BA ear deaf PAR
 ‘The disease he had suffered made him deaf.’

26a has the cause sub-event *hai chang bing* (getting a disease) (see formally represented in Structure 26b down below) which is realised at the sentence-initial position.



26b indicates that the *hai bing* (to get a disease) sub-event serves as the cause and the *long* (deaf) sub-event, as the result. That is, the state of being deaf is caused to happen by the disease that he has suffered.

6.4.4 CEF of implicit BA-constructions

Chinese BA-constructions, as I discussed in Chapter Two, is divided into, first of all, two major types – i.e. explicit BA-construction and implicit BA-construction. The explicit BA-construction is analysed as a causative construction. It contains the Z-XP designating the causative result. The implicit BA-construction contains no resultative Z-XP and the causation meaning is sometimes vaguely implied. 28a, for example, has no explicit resultative Z-XP.

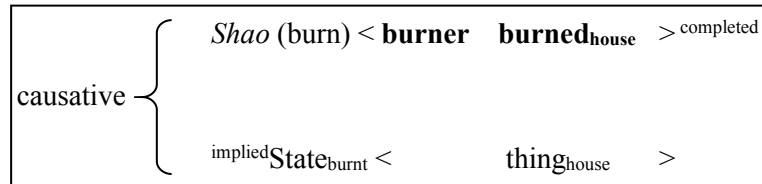
Although the implicit BA-constructions contain no Z-XP, their verb may be followed by the sentence particle *LE*, suggesting the completion of the event designated by the sentence. I name this V-*LE* BA-construction. Even with no result explicitly expressed, the V-*LE* BA-construction still carries some implied result. Example 27a conveys the message that someone also burnt my

house with the event being completed.

27a *ba wo de fang-zi ye shao le* (CNC)
 BA I POS house too burn PAR
 ‘[Someone] also burnt my house.’

In 27a the completeness of the burning event is expressed by the sentence particle *LE*, denoting that the event was completed. The completion of the event leads to a high possible result that the house is burned and destroyed. This implied resultative state can be captured by the CEF illustrated in Structure 27b:

27b



The sentence particle of completion has a high degree of transitivity and leads to the implication of a highly possible consequence. Although the result is only implied, the BA-construction is still acceptable.

The verb *shao* (burn) is a transitive verb. The transitive action designated by the verb *shao* (burn) is interpreted to have an inheriting force strong enough to affect its object entity. The completion of such transitive action naturally leads to a causation implication. The bare verb of *shao* (burn) followed by the sentence particle *LE* can well imply that the object entity is most likely affected. However, an intransitive verb may not have such an affecting force. Example 28a containing the intransitive verb *pao* (run), for instance, is not acceptable.

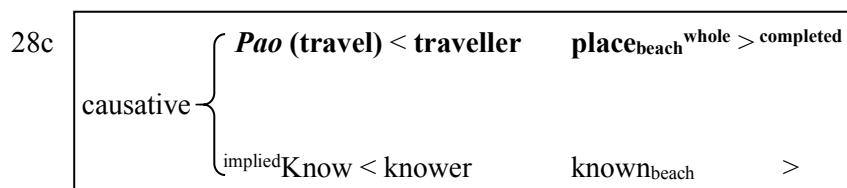
28a **ta-men ji-hu ba hu-tan pao le*
 They almost BA lake beach run PAR

Although the verb *pao* (run) is completed, no causation implication is possible. The intransitive verb *pao* (run) inherits no force strong enough to affect other entity. Therefore, it is unacceptable in

the V-LE BA-construction. Yet, if the intransitive verb *pao* (run) is followed by the word *bian* (all over) as illustrated in 28b, the BA-sentence can be understood to have a causation implication. Example 28b conveys the message that they almost had visited every section of the lake beach.

- 28b *ta-men ji-hu ba hu-tan pao bian* (CNC)
 They almost BA the lake beach run thoroughly
 ‘They almost had visited every section of the lake beach.’

Having travelled every section of the lake beach implies that the travellers have completed their travelling, and consequently they must have known a lot of the lake beach. In traveller’s mind, the information of the beach has been created and updated. In my formalism, the *pao* (travel) sub-event is related with the knowing sub-event to form a causal chain (see Structure 28c). Yet, the knowing sub-event is merely implied.



Since 28c has an implied result, this resultative BA-construction without any explicit result word is still acceptable.

Although the BA-sentence contains the postverbal *bian* (all over), this word cannot be intuitively understood as the result of the resultative construction. Thus, we cannot set up a resultative construction to account for 28a. However, this word can be understood as the completion of the travelling action covering every section of the designated place. Although the word *bian* (all over) and the completion sentence-particle LE are two different syntactic categories and have different meaning, they work together to help contribute an implied causative result to the implicit BA-constructions.

6.4.5 CEF of ambiguous BA-constructions

Some Chinese BA-sentences are ambiguous. The theoretical models highly based on verb event semantics, as I will demonstrate, has problems in handling some ambiguous BA-sentences,

while my CEF approach offers more fine-grained analysis and is possible to offer a better account. 29a, for example, has two interpretations: ‘someone tied up Lu Xiao-feng and took her to the cliff’ or ‘someone took Lu Xiao-feng to the cliff and tied her there’.

29a *zhi-yao ba lu-xiao-feng bang dao ya shang-qu* (CCL)
 Only need BA Lu Xiao-feng tie to cliff up
 ‘[Someone] had only to tie up Lu Xiao-feng and take her to the cliff.’ /
 ‘[Someone] had only to take Lu Xiao-feng to the cliff and tie him there.’

In Goldberg’s (1995) skeletal construction formalism, the verb semantics of *bang* (tie) contains two participant roles. They are tier and tied. The caused-motion construction of 29a consists of three arguments --- i.e. cause, theme and goal. In Goldberg’s fusion model, the verb participant roles fuse with argument roles as illustrated in Structure 29b.

29b ***Bang*** (tie) < tier **tied** >
 cause-to-move < cause **theme** **goal** >

In 29a, the subject is unexpressed. Consequently, only the participant tied is fused with the argument theme, while the argument goal is contributed by the construction itself.

This constructionist account has two problems. First, the caused-motion construction mechanism illustrated in 29b fails to capture and distinguish the two possible interpretations. Second, if we use Goldberg’s approach to account for the first interpretation – i.e. someone tied up Lu Xiao-feng and took her to the cliff, we find that it is odd to say that [someone]’s tying causes Lu Xiao-feng go to the cliff. In other words, tying up someone cannot cause him to move as a result. This descriptive dilemma can be solved in my CEF analysis.

Both the two interpretations discussed previously are formally represented with the same four sub-events. They are *bang* (tie) sub-event, acting sub-event, moving sub-event and *dao* (reach) sub-event. In my analysis, the two different interpretations of the same sub-events have two different sub-event ordering. The former interpretation – i.e. someone tied up Lu Xiao-feng and took her to the cliff – has the *bang* (tie) sub-event as the initial one (see 29c down below).

29c	sequential	{	Bang (tie) < tier	tied _{Lu Xiao-feng}	instrument	>
			Act < actor	acted		>
			Move <	mover	directon _{cliff}	>
			Dao (reach) <	mover _{Lu Xiao-feng}	place _{cliff}	>

The tying sub-event is followed by a gapped acting sub-event, which is related to the gapped moving sub-event and the windowed reaching sub-event in this order to form a sequential chain (see Structure 29c).

The second interpretation – i.e. someone took Lu Xiao-feng to the cliff and tied her there – has the gapped acting sub-event as the initial sub-event and the windowed *bang* (tie) sub-event comes to the last (see Structure 29d).

29d	sequential	{	Act <	actor	acted	>
			Move <	mover	directon _{cliff}	>
			Dao (reach) <	mover _{Lu Xiao-feng}	place _{cliff}	>
			Bang (tie) < tier	tied _{Lu Xiao-feng}	instrument place _{cliff}	>

29d formally represents a different ordering of the same four sub-events. The tier acts on someone and makes him move to the place. Then the tier ties him up there.

In my CEF description, their difference is well accounted for with the different ordering of the same four sub-events. In 29c, the tying sub-event precedes the caused-motion sub-events, while in 29d the tying sub-event follows the caused-motion events. The different ordering of the same sub-events captures the semantic difference of this ambiguous BA-sentence illustrated in 29a.

6.4.6 CEF of fictive causation

The term “fictive” is used in Talmy’s (2000: 99-101) cognitive semantics study to depict the non-veridical phenomena. He uses the term to define motion. In his analysis, motion falls into two categories – i.e. the factive motion and the fictive motion. The sentences of the factive motion depict motion with physical occurrence (see 30a), while the sentences of the fictive motion depict

motion with no physical occurrence (see 30b).

30a He pushed the rock into the valley. (factive motion construction)

30b This fence goes from the plateau to the valley. (fictive motion construction)

(Talmy 2000:99)

In comparison with the factive construction (30a), the fictive construction illustrated in 30b refers to stationary circumstance with the motion construction whose basic reference is to motion. The motion construction can be used to construe either the motion event (see 30a) or the stationary circumstance (see 30b).

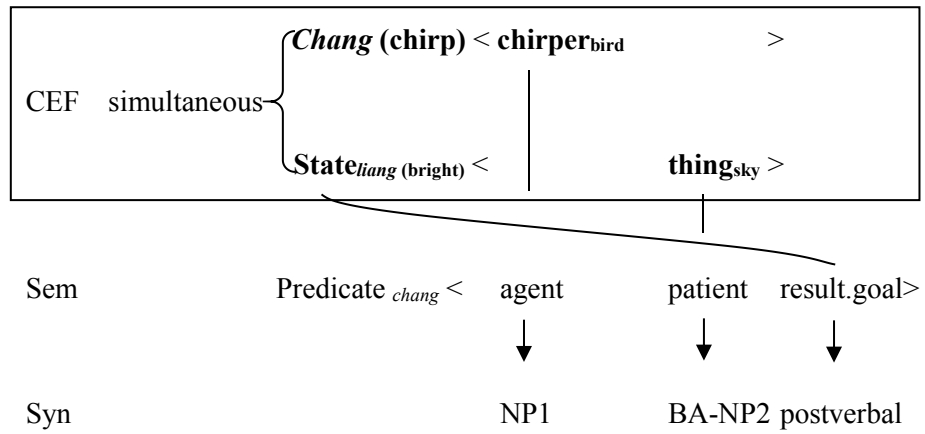
Is such a factive-fictive variation possibly found in constructions other than motion? The answer is positive. The explicit BA-construction, as I have proved, is understood to designate a causative event. Such an explicit BA-construction is also found to construe either the veridical causation or the non-veridical causation. In the latter case, speakers express some non-causative event with an explicit BA-construction. 31a, for instance, conveys the message that the day brightened while the bird was chirping.

31a *xiao-niao* *ba* *tian* *dou* *chang* *liang* *le*
bird BA sky also sing bright PAR

‘The day broke while the bird was chirping.’

In reality, the chirping of a bird can never make a day brighten.. In other words, the chirping sub-event can never make the daybreak sub-event happen. These two sub-events, however, may accidentally happen simultaneously. However, speakers simply construe these simultaneous sub-events into a causative BA-construction. This causation expressed by a causative BA-construction is known as fictive causation. The CEF of the BA-construction with fictive causation consists of sub-events which are not related to other than causative relation. Such a construing pattern can well be captured by the chirping CEF illustrated in 31b.

31b



In such a fictive causation, the chirping sub-event and the *liang* (bright) sub-event are construed as cause and result respectively.

6.4.7 CEF of force-dynamic patterns

Most verbs can be used extensively in Chinese BA-constructions. Such extensive use of verbs makes any theoretical models delimiting themselves within the bound of the verb event semantics inadequate. The CEF I propose is a semantic frame covers the more extensive scope of conceptual content. It offers a better account of the extensive use of various verbs. Sentences 32a-e, for example, all contain the same verb *ti* (kick). They all convey the message that he kicked something and his kicking action made something happen. 32a conveys the message that he kicked the ball into the goal; 32b convey the message that he kicked the ball to the goalkeeper; 32c conveys the message that he kicked and broke the ball; 32d conveys the message that he kicked and had his foot hurt.

32a *ta ba qiu ti jin le qiu-men* (caused-motion BA-construction)
 He BA ball kick enter ASP goal
 'He kicked the ball into the goal.'

32b *ta ba qiu ti gei le shou-men-yuan* (caused-transfer BA-construction)
 He BA ball kick give ASP goalkeeper
 'He kicked the ball to the goalkeeper.'

32c *ta ba qiu ti po le* (resultative BA-construction)

He BA ball kick break PAR

‘He kicked the ball and the ball broke as a result.’

32d *ta ba jiao ti shang le* (resultative BA-construction)

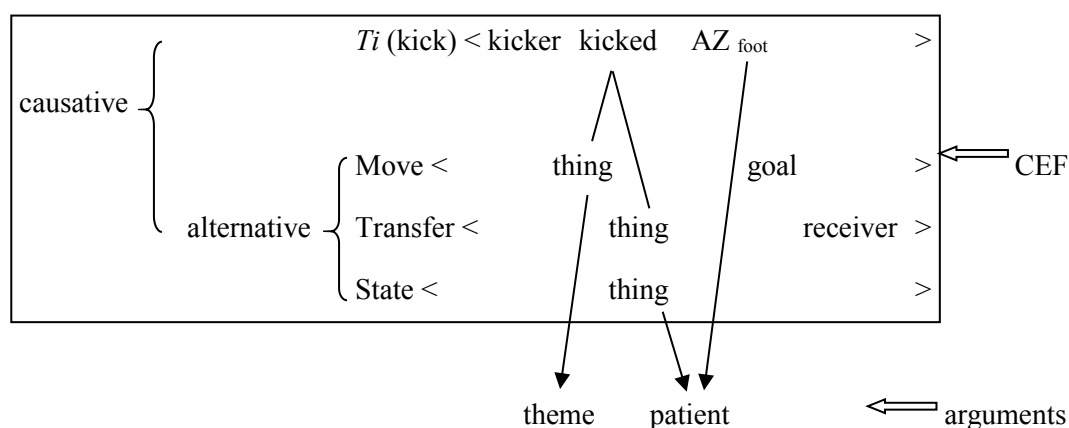
He BA foot kick hurt PAR

‘He kicked and had his foot hurt.’

The verb kick is formalised in most theoretical models as a semantic array of kicker and kicked, while in the extended verb sub-event in the kicking CEF that I propose, the ‘peripheral’ AZ is also included. The reason that the AZ is included because this ‘peripheral’ AZ is conceptually a part of the kicking action and it can be profiled and realised as the grammatical object.

The first and second BA-sentences are caused-motion (see 32a) and caused-transfer BA-constructions (see 32b) respectively. The last two BA-sentences (32c-d) fall into the category of resultative BA-construction. Interestingly, these two resultative BA-sentences have different grammatical objects. If Goldberg’s fusion model were adequate, the grammatical object entity would have been the participant role of the verb event. However, it is not the case in 32d. The participant role *jiao* (foot) in 32d is excluded from the verb event as a ‘peripheral’ element. Thus, theoretical models of verb event are inapplicable to the case illustrated in 32d. Yet, this BA-sentence is no longer a problem in the CEF representation (see Structure 32e).

32e



In this kicking CEF (Structure 32e), the moving sub-event, the transferring sub-event and the state

sub-event are interrelated to form an alternative relation. The kicking sub-event is related with the rest three sub-events to form three causal chains. That is, the kicker causes the kicked to move to a new place (see 32a) or to a new possessor (see 32b) or to change into a new state (see 32c). The kicker may also cause his foot to change into a new state (see 32d). With the peripheral element AZ foot included in the kicking CEF, the 32d can be well treated.

6.5 Summary

The CEF approach that I have proposed is used to account for the remaining problem BA-constructions, including the unmatched BA-constructions, the verbless BA-constructions, the ambiguous BA-constructions and the implicit BA-constructions. Since there is no verb-construction matched-up relation in the unmatched BA-constructions, no fusion is possible. Since no verb occurs in the verbless BA-constructions, lexicalist approaches have no way to derive argument structure and nor can a verb semantic frame be evoked without a verb. The fusion model by Goldberg (1995) is also baffled. To account for all these problem BA-constructions, verb semantic frame is too narrow to be applicable. The CEF I have proposed is no longer the formal representation of verb event. Instead it represents the encyclopaedic knowledge of whole sentence.

I have argued that BA-constructions need richer encyclopaedic knowledge to mediate between the verb meaning and the constructional meaning. The CEF is set up to formally represent such rich encyclopaedic knowledge. The CEF is composed of several sub-events which are all related so as to make a coherent CEF representing the coherent referent scene. At least two types of intra-subevent relations are frequently identified. They are sequential relation and simultaneous relation.

To form a possible coherent CEF, as I have argued, both windowed and gapped concepts are indispensable. In this sense, the importance of the windowing-gapping organisation proposed by Talmy (2000) can never be over-emphasised. The event frame by Talmy (2000) and the semantic frame by Fillmore have given some help in setting up CEFs upon which various windowing-gapping organisations are superimposed. However, the verb event semantics, as I have successfully argued, offers too narrow a scope of encyclopaedic knowledge enough to be directly associated with the constructional meaning. The CEF is motivated to extend its verb sub-event to include the ‘peripheral’ elements, which are profiled in Chinese constructions. With the help of the gapped concepts, the coherent encyclopaedic knowledge is well represented. The gapped concepts

together with the windowed ones make it possible to mediate between the verb meaning and the constructional meaning.

Furthermore, the expanded CEFs are also found to account very well for implicit BA-constructions, some ambiguous BA-constructions. My study has also shown that the term ‘fictive’ which is used by Talmy (2000) to refer to the non-physical motion can be also used to refer to the non-causative BA-construction. In this sense, the explicit BA-constructions consist of both factive causation as well as fictive causation. The CEF can capture their difference via its different relations between sub-events.

Since the CEF represents a wider scope of encyclopaedic knowledge served as the background knowledge for understanding sentences, all the possible alternate BA-constructions and all the possible BA-construction variants of the same CEF can be well treated. In the following Chapter Seven, I will focus my detailed study on how various BA-constructions are construed from the same CEF.

7.1 Introduction

The Chinese BA-constructions, as discussed in Chapters Five and Six, demonstrate rich variants and alternations. Their variants and alternations are found in all the three basic types of BA-constructions – i.e. caused-motion BA-construction, resultative BA-construction and caused-transfer BA-construction. English has the locative alternation (Goldberg 2002b), such as 1a and 1b.

1a They threw a ball to her.

1b They threw her a ball.

They belong to two different constructions – i.e. dative construction (see 1a) and ditransitive construction (see 1b). Different constructions as they are, they actually convey the similar message which specifies the thrower ‘they’, the receiver ‘her’ and the motion entity ‘ball’. However, one obvious difference is these two alternates have different grammatical objects.

It is possible for Chinese caused-motion BA-construction to alternate with a different BA-construction. The alternates 2a and 2b, for example, have similar conceptual meaning. They both convey the message that specifies the entity *qiang-zhi* (wall-paper) which is stuck somewhere and the place *qiang-shang* (wall) the entity *qiang-zhi* (wall-paper) goes.

2a *ba qiang-zhi tie zai qiang-shang*

BA wall-paper stick at wall-up

‘[Someone] stuck wallpaper onto the wall.’

2b *ba qiang tie shang qiang-zhi*

BA wall stick up wall paper

‘[Someone] stuck the wall with the wallpaper.’

The obvious difference between 2a and 2b also lies in the choice of grammatical object. Within my CEF approach, the messages that two BA-sentences convey can be represented by the sticking CEF,

which consists of at least three frame elements. They are sticker, stuck and place. This sticking CEF can be realised as different BA-constructions with different choices of the grammatical object. In 1a, the stuck *qiang-zhi* (wallpaper) is realised as the grammatical object; while in 1b, the Place *qiang* (wall) is realised as the grammatical object.

Chinese resultative constructions have even richer variations in different choice of object. The Chinese verb *kan*, for instance, can be interpreted either as see or as read depending on the context which it occurs in. In the case of ‘see’ interpretation, the verb motivates the seeing CEF. The seeing CEF contains at least three elements, including see-er, seen and AZ_{eyes}. All these three frame elements can be chosen as the grammatical object in Chinese resultative BA-constructions (see 3a-3c). In other words, the resultative BA-constructions have variants with different choices of the profiled grammatical object. 3a conveys the message that someone misread the question. In the case of ‘read’ interpretation, a reading CEF is activated. This reading CEF may consist of reader, and read.thing. 3b and 3c are the examples construing the reading CEF. The 3b denotes that someone read something and he got a poor eyesight as a result. 3c designates that reading the book made the reader tired.

3a *ba ti kan cuo le* (seen-object)
 BA question see wrong PAR
 ‘[Somone] misread the question.’

3b *ba yan-jing kan huai le* (eyes-object)
 BA eyes see bad PAR
 ‘Someone read something and he got a poor sight as a result.’

3c *shu BA ta kan lei le* (see-er-object)
 Book BA he see tired PAR
 ‘Reading the book tired him out.’

I argue that any entity involved in an interaction is possible to be involved in a change of state. Such an entity is able to be realised as grammatical object. In 3a for instance, the seen element, which is one of the conceptual elements of the seeing CEF, is involved in the interactions and then

is involved in a change, though metaphorically. By metaphorical change, it is meant that the frame element seen *ti* (question) is involved in a change in the reader's mind. In 3b, what is involved in a change of state are the AZ element, *yan-jing* (eyes). In 3c, even the reader is construed as the affected patient, therefore, it is realised as the grammatical object of the BA-sentence. I have observed that both the caused-motion BA-construction variants (see 2a and 2b) and the resultative BA-construction variants, as exemplified in 3a-c, are concerned with the choice of BA-marked grammatical object.

This chapter contends that variations of BA-constructions are part of linguistic knowledge. The variations of BA-constructions are properly accounted for in the ways that CEFs are construed into various constructions (see Section 7.2). The various BA-constructions can be adequately analysed in terms of topic-subject and trajector-object. Different choices of topic-subject and trajector-object make different profiling patterns superimposed on CEF. The same CEF, then, can be construed into various constructions with different profiling patterns (see Section 7.3). Thus, besides the force-dynamic patterns of the CEF and the windowing-gapping organisations superimposed on the CEF, an adequate framework to account for various BA-constructions also require the CEF to work with various profiling patterns (see Section 7.4). Within this framework, the CEF superimposed with various windowing-gapping organisations and profiling patterns is construed or realised as various syntactic structures. These profiling patterns are also indispensability parts of our linguistic knowledge (see Section 7.5).

7.2 Content and construals

The cognitive linguists pay attention to the study of the meaning-form pairings. The semantic study of cognitive linguistics views meaning as encyclopaedic knowledge. The encyclopaedic knowledge includes Langacker's (2008) conceptual content. Such encyclopaedic knowledge, as I have argued, is adequately represented in a CEF. Section 7.2.1 below will discuss the possible formal representation of conceptual content within the CEF approach.

7.2.1 Content and alternate construals

The conceptual substrate in Langacker's (2008: 43) term consists of both conceptual content or domain and particular alternate ways of construing the content. That is, Langacker (2008: 43) analyses meaning at two levels. One is the conceptual level and the other is the linguistic level. He

contends that the conceptual content can be evoked in a neutral manner; while certain construals are imposed to encode the conceptual content (Langacker 2008:43). He illustrates this notion of the elaborated conceptual substrate with some interesting linguistic expressions as illustrated in examples 4a-4d.

4a The glass with water in it

4b The water in the glass

4c The glass is half-full.

4d The glass is half-empty. (Langacker 2008: 43)

All the four expressions construe the ‘neutral’ conceptual content in different ways. To offer a clearer picture of the points that Langacker (2008) makes, I modify Langacker’s illustrative diagram as Figure 7.1.

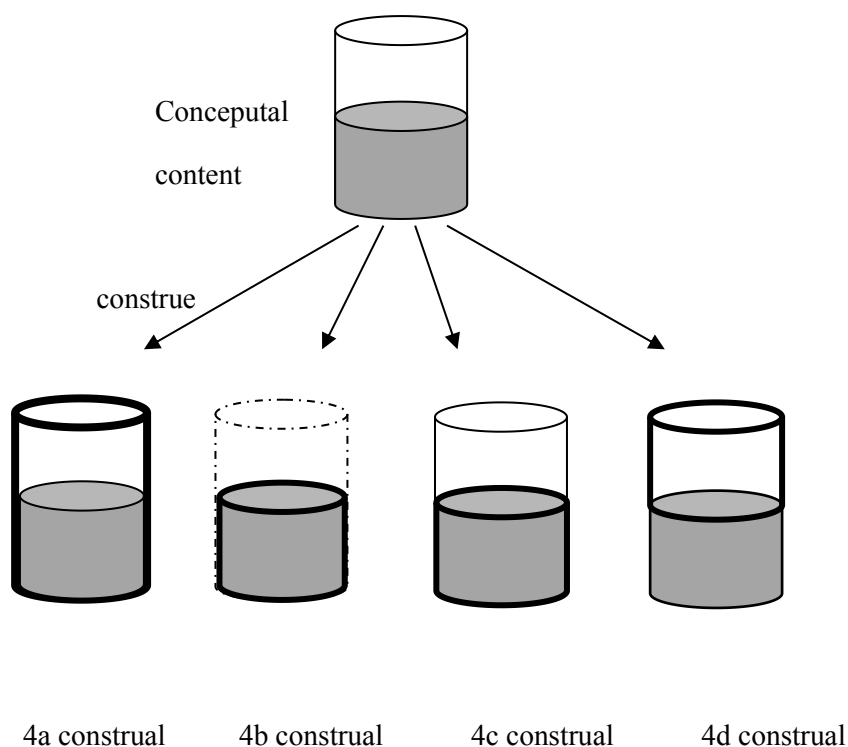


Figure 7.1 Conceptual content and construal (cf. Langacker 2008: 44)

Their semantic contrast (as depicted by means of heavy lines in Figure 7.1) lies in what the linguistic expressions designate. Example 4a designates the glass containing the water. Example 4b

designates the water in the glass. Example 4c denotes the water-filled volume of the glass. Example 4d denotes the void part of the glass. In a fine-grained analysis, the four expressions do not construe exactly the same neutral conceptual content. 4c and 4d designate the volume of the water. Such information is missing in 4a and 4b. In Talmy's (2000) term, the missing concepts are **gapped**.

Similar cases can also be well illustrated by Chinese BA-constructions. Examples 5a and 5b convey the message which specifies the wrapper *ta* (she), the wrap *mao-jin* (towel) and the wrapped *tou-fa* (hairs).

5a *ta* *ba* ***tou-fa*** *guo* *shang* *mao-jin*
 She BA hair wrap up towel
 'She wrapped up her hair with a towel.'

5b *ta* *ba* ***mao-jin*** *guo* *zai* *tou-fa* *shang*
 She BA towel wrap at hair up
 'She wrapped a towel around her hair.'

Both the BA-sentences (5a and 5b) share the wrapping CEF composed of three frame elements: wrapper, wrapped and wrap. This wrapping CEF can be construed via constructions with different grammatical objects. In Example 5a, the wrapped *tou-fa* (hair) is profiled and taken as the grammatical object, while in Example 5b, the wrap *mao-jin* (towel) is profiled and taken as the grammatical object.

Although both the BA-sentences share the conceptual content, their distinctions can be detected in a fine-grained analysis of their construals. Example 5a is a caused-motion construction. The speaker emphasises that the wrapped *tou-fa* (hair) is moved to the wrap *mao-jin* (towel). In 5b, the speaker construes the same content with the emphasis that the instrument *mao-jin* (towel) can be moved and handled so as to do the wrapping.

The object variants in other CEFs can be more complicated. The tying CEF, for instance, contains at least four frame elements – i.e. tier, tied₁, tied_n and instrument. They together convey the message that tier ties tied₁ and tied_n together with an instrument. For example:

6 John tied the two boys together with a rope.

Such a CEF can be construed in various ways in Chinese BA-constructions, although the variants have the similar meaning. All Examples 7a-d, for instance, convey the message that someone tied up something/someone. However, they have different grammatical objects.

7a *ba* ***zi-ji*** *bang* *qi-lai* (CCL)
BA himself tie up-come
‘[Someone] tied himself up.’ [tier as object]

7b *ba* ***ta*** *bang* *zai* *shu-shang* (CCL)
BA he tie at tree up
‘[Someone] tied him to the tree.’ [tied as object]

7c *ba* ***ji-qi*** *bang* *shang* *sheng-zi* (CCL)
BA machine tie up rope
‘[Someone] tied the machine with the rope.’ [tied as object]

7d *ba* ***si-dai*** *bang* *zai* *jin-jia* *wai-ce* (CCL)
BA ribbon tie at frame of the glasses side
‘[Someone] tied a ribbon to one side of the frame of the glasses.’ [instrument as object]

These variants demonstrate four different choices of the profiled grammatical objects summarized in Table 7.1.

Table 7.1 Profiled object variation

No	profiled element	example
7a	tier	<i>zi-ji</i> (himself)
7b	tied	<i>ta</i> (him)
7c	tied	<i>ji-qi</i> (the machine)
7d	instrument	<i>si-dai</i> (the ribbon)

As the four exemplified BA-sentences illustrate, the three out of the four frame elements can be treated as the trajector and be realised as the grammatical object. In comparison with English, Chinese BA-constructions have much more choices of the grammatical object.

7.2.2 Justification of semantic relatedness

Not all the versions of construction grammar focus their study on the alternate construing constructions and construction variants. The generalisation of alternate and various construing constructions is downplayed in argument structure construction grammar, although those constructions are semantically and/or syntactically related. Yet, Goldberg does not entirely neglect alternations in language use (Cappelle 2006; Perek 2015). At least, she notices the “semantic synonymy” link between variants of the dative alternation (Goldberg 1995: 91). For example:

8a Tom kicked her a ball.

8b Tom kicked a ball to her.

In Goldberg’s analysis, 8a and 8b are semantically synonymous and syntactically different. Similar semantic synonymy link, as I observed, also exists in Chinese BA-constructions. Both 9a and 9b, for example, convey the message that someone wrapped up the vase with cloth.

9a *ba hua-pin guo shang bu*

BA vase wrap up cloth

‘[Someone] wrapped the vase with a cloth.’

9b *ba* *bu* *guo* *zai* *hua-pin* *shang*
 BA cloth wrap at vase up
 ‘[Someone] wrapped a cloth over the vase.’

Yet, they are syntactically different. Goldberg claims that variants of alternation “can also be seen to be relevant to on-line choices made in production” (Goldberg 2002: 329).

Cappelle (2006) and Perek (2015) treat the alternation issue more seriously than Goldberg does. Both of them attempt at integrating alternations into a constructionist analysis by setting up “a common meaning over several constructions” (Perek 2015: 151). In Cappelle and Perek’s alternation taxonomy model, the common meaning is represented as constructeme, while the constructions associated with the common meaning is termed as allostructions. A constructeme is related to its allostructions in the same way as a morpheme is related to its allomorphs. For example:

10a Mary gave John a book.

10b Mary gave a book to John.

Both the constructions are treated as two different allostructions of the same constructeme of caused-transfer construction. The dative constructeme and allostructions are said to be formally represented in a taxonomy model (see Figure 7.2). As illustrated in Figure 7.2, the “eme-allo” taxonomy model, the association between the constructeme and the allostructions and the relations between allostructions can be well captured.

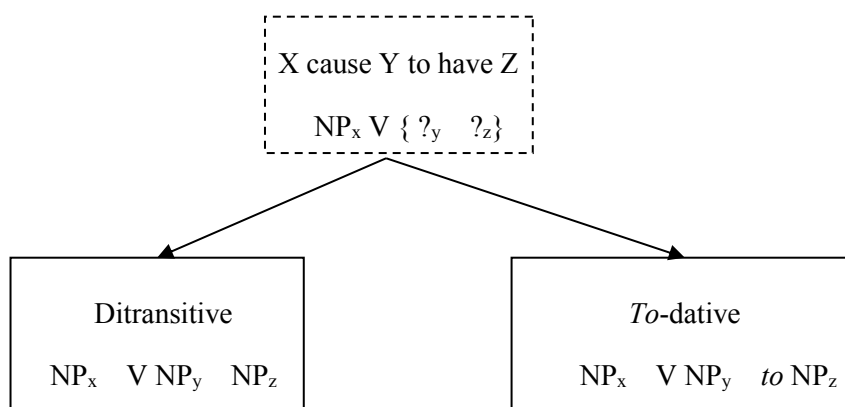


Figure 7.2 The dative constructeme and its allostructions (Perek 2015)

The necessity of such alternation taxonomy for the linguistic knowledge is convincingly argued for with two pieces of evidence (Cappelle 2006). The first evidence comes from the alternate idiomatic expressions, such as *pull one's socks up* and *pull up one's socks*. Since both the expressions are the same in semantics in the sense that both have the idiomatic meaning, to treat them as totally independent and unrelated units is not psychologically plausible (Cappelle 2006: 13).

The second one comes from a learnability issue. Based on Goldberg's (2006) idea of "statistical preemption", Cappelle (2006: 15) contends that "the more often speakers do not use a given form which would be most suitable in a particular discourse context, the stronger it becomes the evidence for a child that this form is not acceptable: the heard form pre-empts the expected form". Such a mechanism itself presupposes, according to Cappelle, the existence of the alternate relatedness is a part of speaker's linguistic knowledge.

The constructeme and its allostructions are very much like the conceptual content and its various construals in Langacker's account. In his cognitive domains, Langacker (1987, 1990, 1991, 2008) further explores various ways of construing conceptual content, which has not been included in the "eme-allo" model. In a fine-grained analysis, various construals can be analysed as having different choices of topic-subject and trajector-object. In the following sections, I will discuss, then, the ways various CEF elements can be profiled and construed either as **topic-subject** or as **trajector-object**.

7.3 Topic and trajector in construing patterns

The conceptual content represented in CEF can be construed as various constructions. Various constructions are associated with their conceptual content via different profiling patterns. The profiled frame elements are those which are realised either as grammatical subject or as grammatical object (cf. Langacker 2008). The profiled element realised as a grammatical subject is called **topic** and the one realised as the grammatical object is known in my CEF analysis as **trajector**. For example:

11 Larry threw the ball to the basket.

The subject *Larry* is treated as the **topic** and the object *the ball* is treated as the **trajector**. In the

following sub-sections, I will define and discuss the **topic** in Section 7.3.1 and the **trajector** in Section 7.3.2.

7.3.1 Topic

Semantic units in a sentence are not equally prominent. Some of them are more prominent than others. In Cognitive Linguistics account, the more prominent semantic units are said to be profiled. The profiled units include those realised as either a grammatical subject or a grammatical object. In this section, a working definition is set up for the topic and their types occurring in Chinese BA-constructions are discussed.

The definition of the topic in this thesis is very much the same as the one by Halliday (1994) in his systemic-functional grammar. In his analysis, the semantics of a clause is analysed as a combination of three distinctive semantic structures. One of them is the **thematic structure** (Halliday 1994). A thematic structure consists of **theme** and **rheme**. In Example 12a, for instance, *Larry* is treated as the **theme** and *bought a new ball* as the **rheme**. “The Theme is the element which serves as the point of departure of the message; it is that with which the clause is concerned.” (Halliday 1994: 37) The theme can be a complex one (see 12b).

12a Larry bought a new ball.

12b Yesterday Larry bought a new ball.

Both *yesterday* and *Larry* in Example 12b as a whole is taken as the theme. A theme usually contains a noun phrase. A noun phrase theme is called **topic** (Halliday 1994).

In the CEF analysis, the **topic** is defined as the CEF element selected as the starting point of the message in its construal. It serves as a construing perspective (Langacker 2008). *Larry* in Example 12a, for instance, is construed and encoded within the perspective of the customer.

Topic is also viewed as speakers’ “current interest which a statement is about and with respect to which a proposition is to be interpreted as relevant” (Lambrecht 1994: 119). The similar view is also found in Gundel’s (1988:210) analysis. Very often a topic offers some given information and is the element that has some anaphoric reference. I notice that in Chinese such a topic element is often gapped and unexpressed. I call such topic as an **implicit topic**. The sentence exemplified in the Example13 consists of two BA-constructions. The first one denotes that **SHE** swept up the dust and

the second one denotes that **SHE** picked up the debris from the dust and threw them away.

13 *ta...ba ... fu-tu sao qi-lai,*

She BA dust mop up,

‘She mopped the dust,

bing... ba fu-tuzhong de za-wu jian chu-lai...

and BA dust inside AUX debris pick out

and [she] picked up the debris from the dust...’

(from *Big Breasts and Wide Hips* by Mo Yan)

The two BA-constructions share the topic element, *ta* (she). The first topic is explicitly expressed and the second one is gapped and unexpressed. Such a gapped topic or implicit topic functions as a cohesion device in discourse.

I also contend that an implicit topic may have no anaphoric reference. In science writing, for instance, a writer sometimes simply uses an implicit topic to downplay the super-physical entity so as to gain an emphasis on the entity under discussion. Sentence 14, for example, conveys the message that a cosmic string attached to the earth could accelerate it from 0 to 60 mph in 1/30 second.

14 *ba yi-gen yu-zhou-xian xi dao di-qiu shang,*

BA one rope of the universe tie reach earth up,

jiu hui BA di-qiu zai 1/30 miao de shi-jian li

at once able BA earth at 1/30 second POS time inside

cong mei-xiao-shi ling ying-li (1 ying-li=1.609 gong-li).

From per hour zero mile

jia-su dao mei-xiao-shi 60 ying-li

speed up reach per hour 60 miles.

‘A cosmic string attached to the earth could accelerate it from 0 to 60 mph in 1/30 second.’

(Hawking, Stephen. 1988. *A Brief History of Time: From Big Bang To Black Holes*, pp75. The Chinese version. Translated by Ming-xian XU, Zhong-chao WU, pp83)¹

There are two BA-constructions in this sentence. It is true that both the implicit topics can be interpreted to have the same reference. Yet, this possible implicit reference has never emerged on the surface as an explicit expression in their pretext. Nor can it be treated as an entity with old information. To blur this implicit, gapped topic is to make the entity in Rheme (Halliday’s term) more prominent and protruding.

In sum, the **topic** in this thesis is viewed as a notion of form-meaning relation. A topic element is realised as the sentence-initial unit. A topic serves as the departure point of the message that the sentence conveys. What my analysis differs from Halliday’s is that in Chinese, the topic can be either explicit or implicit. The **implicit topic** usually has some gapped anaphoric reference, particularly in science writing.

In the CEF analysis, all the elements of a CEF have the potential of being chosen as topic-subject. The CEF associated with transitive construction, at least, contains two elements – i.e. actor element and acted element. Either of the elements can serve as the topic in Chinese. The eating CEF, for instance, at least contains eater and eaten, and either of them can be construed as a topic. Example 15a, for instance, conveys the message that the cat ate up the chick. Example 15b denotes that those potatoes, I ate up them and felt burst.

15a *mao ba xiao-ji chi le* (CCL)

Cat BA chick eat PAR

‘The cat ate the chick.’

15b *na-xie tu-dou ba wo chi cheng le* (CCL)

Those potato BA I eat full PAR

‘Those potatoes, I ate up them and felt burst.’

¹ This segment is extracted from the Chinese translation of Hawking (1988)’s *A Brief History of Time*.

In 15a, the eater element *mao* (cat) serves as the topic, while in 15b, the eaten element *tu-dou* (potato) serves as the topic.

The main verb associated with a CEF may also be an intransitive one. In such a case, there is no acted element. Yet, such a CEF may also contain a place element representing the place where the intransitive action happens. I observe that either the actor or the place can serve as a topic. The sleeping CEF, for example, contains the element sleeper and the element place (see Examples 16a and 16b). The sleeper element can be further extended to the element *shen-zi* (body), which designates a part of the sleeper. 16a denotes that he slept on the bed and made the bed collapsed. 16b denotes that [if sleeping on the bed for too long,] sleeping on the bed made the sleeper listless.

16a *ta ba chuang shui ta le*
 He BA bed sleep collapse PAR
 ‘He slept on the bed and made the bed collapsed.’

16b *chuang hui ba shen-zi shui ruan* (CCL)
 Bed can BA body sleep soft
 ‘The bed can make [your] body painful.’

In 16a the sleeper element *ta* (he) is construed as the topic, while in 16b, the sleep.place element *chuang* (bed) functions as the topic.

In Halliday’s (1994) systemic analysis, a clause or a predicate can also serve as the theme. For example, in the 17, an if-clause acts as the Theme of the sentence:

17 **If winter comes**, can spring be far behind? (Halliday 1994: 57)

Similarly, Chinese BA-construction can have clause or verb-object construction as a topic (see 18). Example 18 conveys the message that eating too many candies is likely to harm your teeth.

18 *chi tang guo-duo rong-yi ba ya chi huai le*
 Eat candy too many easily BA tooth eat bad PAT
 ‘Eating too many candies is likely to harm your teeth.’

The verb-object construction topic *chi tang guo-duo* (eat too many candies) in 18 serves as the topic of this BA-construction.

7.3.2 Trajector

The trajector² is another significant profiled element. It is rather important in the sense that it is the only element that is always overtly expressed in all the possible BA-constructions. Without the trajector, the BA-construction is ungrammatical and unacceptable. The following part of this section will define the trajector, explores the possible types of the trajector in BA-constructions and the motivation of various choices of trajector-object.

7.3.2.1 Defining trajector

In this thesis, the trajector is also defined in terms of form-meaning relation. The trajector is understood as one of the obligatory elements in the BA-construction. In the conveyance of a message, some profiled concepts can be construed as being re-located, re-described or transferred. Such profiled concepts can be typically selected as trajector (Langacker 2008). Within the CEF perspective, trajector in BA-construction is the only frame element, whose new location, possession or state is specified or implied.

Syntactically, the trajector in a transitive type of construction including BA-construction is always realised as the grammatical object (see 19), while in an intransitive construction, it can function as a topic (see 20). Both 19 and 20 designate that the book was on the table. In other words, two examples contain the same trajector *shu* (book) with its location *zhuo-zi* (table) specified.

19	<i>wo</i>	<i>ba</i>	<i>shu</i>	<i>fang</i>	<i>zai</i>	<i>zhuo-zi</i>	<i>shang</i>
	I	BA	book	put	at	table	up
	‘I put the books on the table.’						

² Trajector is used to refer to the BA-marked entity whose change is further specified with the expression, which is known as its landmark.

20 *shu zai zhuo-zi shang*
 Book at table up
 ‘The books are on the table.’

This trajector *shu* (book) in both Examples 19 and 20 is more prominent than its location landmark *zhuo-zi* (table). The trajector *shu* (book) in the transitive sentence (see 19) is realised as the grammatical object, while *shu* (book) in the intransitive sentence (see 20) acts simultaneously as the topic and the trajector. That is, the topic and trajector in 20 are overlapped. Since *shu* (book) in 20 is the starting point of the message, it is realised as the grammatical subject.

Unlike topic, which can be deprofiled and covert, trajector must remain prominent and explicitly expressed as its location, possession or state is specified. In the case of BA-construction, the obligatory trajector is always realised as the BA-marked grammatical object preceding the main verb. The BA-marked trajector *shu* (book) in 19, for example, precedes the main verb *fang* (put).

In sum, the trajector’s prominence status in BA-construction can be demonstrated in the following three aspects. Firstly, the trajector is the element that it must be specified. Secondly, the BA-marked grammatical object realising the trajector element is the only obligatory unit in the BA-sentence. Thirdly, any CEF elements representing BA-constructions have the potential of being selected as trajector. I will discuss in details the possible frame elements functioning as trajector-object of BA-constructions.

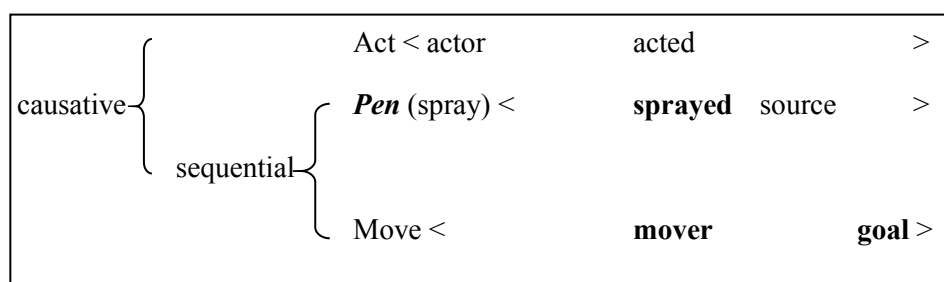
The grammatical object in Chinese demonstrates rich possibilities. A large selection of objects indicates that Chinese can have rather various profiling patterns superimposed upon CEFs. For example, the spraying event can be associated at least with two alternate BA-constructions as illustrated in the Examples 21a and 21b. Both the BA-sentences convey the similar meaning that he sprayed some paint on the wall.

21a *ta ba lan qi pen zai yuan-qiang shang*
 He BA blue paint spray on courtyard wall up
 ‘He sprayed the blue paint on the courtyard wall.’

21b *ta ba yuan-qiang pen shang lan qi*
 He BA courtyard wall spray up blue paint
 ‘He sprayed the courtyard wall with the blue paint.’

In the CEF formalism, the shared conceptual content of these two alternate constructions can be represented as the conceptual structure (or encyclopaedic knowledge) of spraying CEF illustrated in Structure 21c.

21c



The spraying CEF is understood as this. Some actor works on something to cause the sprayed to move out of its source container. The sprayed can move towards a new place. Such CEF can be construed into two alternate BA-constructions (see 21a and 21b). The difference between 21a and 21b can be analysed as different **trajector-object**. In 21a, the trajector-object is the sprayed *lan qi* (the blue paint) which is specified as moving from the container to the place. In 21b, the trajector is the place *yuan-qiang* (the courtyard wall) which is involved in a change of colour through being covered by the blue paint.

Some other CEFs can be more complex. They may contain various sub-events and frame elements. An eating CEF, for an instance, consists of at least eater and eaten (usually food). As Chinese BA-expressions indicate that an eating CEF can even include more elements associated with the element eaten. I observe at least four more elements in my BA-sentence data. They are the AZ teeth, the provider of the food and the places container, mouth and stomach that the eaten (food) goes into and stay in. This eating CEF can, thus, be analysed as a sequence of coherent sub-events, including at least the **moving-to-mouth sub-event**, the **chewing sub-event**, the **swallowing sub-event** and the **moving-to-stomach sub-event** (see the last four sub-events in Structure 22a). They can be formally represented by CEF as 22a.

22a	sequential	Provide <	provider	provided _{food}	>
		Contain <	container	contained _{food}	>
		<i>Chi</i> (eat) < eater		eaten _{food}	>
		Move <	mover	goal _{mouth}	>
		Chew < chewer	chewed		AZ _{teeth} >
		Swallow < swallower	swallowed		>
		Move <	mover	goal _{stomach}	>

The designation of these coherently related seven sub-events can be described as follows:

- (1) The providing sub-event denotes that the provider provides some provided_{food};
- (2) the containing sub-event denotes that there is something in the container;
- (3) the eating sub-event denotes that the eater eats some eaten_{food};
- (4) the moving-to-mouth sub-event denotes that the mover_{food} moves to place_{mouth};
- (5) the chewing sub-event denotes that the chewer chews the chewed_{food} with AZ_{teeth};
- (6) the swallowing sub-event denotes that the swallower swallows the swallowed_{food};
- (7) the moving-to-stomach sub-event denotes that the mover_{food} moves to place_{stomach}.

It is visually obvious (see Structure 22a) that the element eaten (food in this case) has a rich semantic load. The eaten can be the food provided by the provider in a container, chewed, swallowed and moves into the stomach. That is, the element eaten can be bound with the provided, the contained, the chewed, the swallowed and the mover (see Structure 22a) ³.

The CEF must be coherent. In a coherent eating CEF, windowed or gapped elements are bound with other ones when they are semantically compatible. At the same time, all the sub-events are interrelated to form a conceptual sequence (see 22a above).

The eating CEF can be construed into different BA-constructions (see 23-30) with various choices of trajector-object (see Structure 22b).

³ The bound elements in a CEF are represented in the same column.

sequential	Provide < ^{ti} provider	provided _{food}	> ⁴	25
	Contain <	^{ti} container	contained	> 26
	<i>Chi</i> (eat) <	^{ti} eater	^{ti} eaten	> 27/23/24
	Move <	mover	^{ti} goal _{mouth}	> 28
	Chew <	chewer	chewed	^{ti} AZ _{teeth} > 29
	Swallow <	swallower	swallowed	>
	Move <	mover	^{ti} goal _{stomach}	> 30

It seems, as the Structure 22b demonstrates, that all the possible frame elements can function as trajector and be realised as a grammatical object in BA-construction.

An eating CEF can be construed as the process of moving the food into the mouth and then into the stomach. The moving processes can be construed as caused-motion BA-construction as illustrated in 23 and 24. Example 23 conveys the message that my sister-in-law put the sour date into her mouth; Example 24 conveys the message that the fox ate up the whole domestic rabbit into its stomach.

23 *er-sao ba suan-zao chi zai zui-li* (CCL)

Sisiter-in-law BA sour date eat in mouth inside

‘My sister-in-law put the sour date into her mouth and ate it.’

24 *hu-li ba jia-tu dou chi jin du-zi li qu le* (CCL)

Fox BA domestic rabbit all eat enter stomach inside go PAR

‘The fox ate up the whole domestic rabbit into its stomach.’

In both 23 and 24, the eaten, *suan-zao* (a sour date) and *jia-tu* (domestic rabbit) are chosen as the trajector-object in their respective caused-motion BA-construction.

Except for the eaten element, other elements of the same eating CEF can also be construed as trajector-object. They include provider, container (of the food), eater, goal_{mouth}, AZ_{teeth} and goal_{stomach}. All the chosen trajectors can be interpreted as an affected entity in their interaction with

⁴ tr is the short form of trajector.

other elements within the process of eating. All these affected elements can be taken as the trajector-object in the resultative BA-construction with their respective specified resultative state. The eating event, for instance, can make the food provider thinner (see 25), the food container empty (see 26) and the eater uncomfortable (see 27). The eating event may even be involved in a danger of hurting the mouth (see 28), of damaging the teeth (see 29) or of hurting the stomach (see 30). All these frame elements, though excluded from verb event as ‘peripheral’ can all be chosen as trajector and realised as the grammatical object.

In Sentence 25, the food-provider *ai-lin-na* (Alina) is construed as the trajector-object. It describes the change of the provider after feeding the eater. The context of this exemplified BA-sentence is this. The newly-born rats feed on their mother Alina for 6 weeks. Just after a few days of being in lactation, Alina becomes thinner. Example 25 conveys the message that after few days, they made Alina thinner.

25 *ji-tian zhi-hou, ta-men jiu ba ai-lin-na chi DE shou-shou de* (CCL)

Few days after, they only BA Alina eat DE⁵ thin POS

‘After few days, they made Alina thinner.’

Interestingly, the BA-marked object *ai-lin-na* (Alina) is not the eaten, but the **provider** of the food. This provider *ai-lin-na* (Alina), being the trajector-object, is interpreted as being affected in this eating event to the extent that she became thinner. The resultative state of Alina is specified by the resultative phrase *sou-sou de* (thin) led by the conjunction *DE*.

Besides the provider, the food container of the eating CEF is another option for the trajector-object. Sentence 26, for example, is such a resultative BA-construction. Example 26 conveys the message that she cleaned all the food in the bowls and plates.

26 *ta ba wan-pan chi de gan-gan-jin-jin* (CCL)

She BA bowl and plate eat DE clean

‘She cleaned all the food in the bowls and plates.’

This BA-sentence has the container *wan-pan* (bowl and plate) of the containing sub-event (see

⁵ DE designates the conjunction leading a *DE*-construction.

Structure 22b above) as the trajector-object of the BA-sentence. This container *wan-pen* (bowl and plate) is understood as being empty in the eating event as the food it contained was all gone.

The eaten can make the eater full. The eater trajector-object, though rare in Chinese and impossible in English, is still possible in resultative BA-constructions (see 27). Example 27 conveys the message that eating potatoes made me feel that my stomach was bursting.

- 27 *tu-dao ba wo chi de du-zi fa-zhang* (CCL)
 Potato BA I eat DE stomach burst
 ‘Eating potatoes made me feel that my stomach was bursting.’

In this exemplified BA-sentence the eater *wo* (I) is taken as the trajector-object which designates that it was affected by eating potatoes. The *DE*-construction *du-zi fa-zhang* (stomach burst) is used to further modify the extent to which the eater *wo* (I) was affected.

In Sentence 28, the moving.goal *zui* (**mouth**) is construed as the trajector-object. Example 28 conveys the message that he had some blisters in his mouth as he ate the fries.

- 28 *shu-tiao ba zui chi qi le pao*
 Fries BA mouth eat up ASP blister
 ‘He had some blisters in his mouth as he ate the fries.’

The mouth as an affected entity was involved in a change from a healthy state of mouth into a mouth with some blisters.

As illustrated in Example 29, the **AZ** *ya-chi* (teeth) in the chewing sub-event can also function as the trajector and be interpreted as an affected entity in the eating CEF. That is, eating black beans may blacken the teeth. Thus, *ya-chi* (teeth) in 29 is an affected trajector realised as the BA-marked object. Example 28 conveys the message that how can the black beans blacken the teeth.

29 *hei-dou zen-me neng ba ya-chi chi hei NE?*
 Black bean how able BA teeth eat black Q⁶
 ‘How can the black beans make the teeth black?’

The eater’s stomach can also be interpreted as the affected element because the eater eats too much. The BA-sentence 30 carries the meaning that you should have the danger of bursting your stomach if you eat like this.

30 *ni fei ba du-zi chi zha le bu-ke (CCL)*
 You must BA stomach eat burst ASP not stop
 ‘You should have the danger of bursting your stomach if you eat like this.’

In sum, it has been proven with all the exemplified BA-sentences (see 23-30), that all the possible eating CEF elements, as formally illustrated in Structure 22b, can be construed as trajector-object. The Chinese BA-sentences with the verb *chi* (eat) can have at least two types of constructions. They are caused-motion BA-construction and resultative BA-construction. In the caused-motion BA-construction, it is only the **eaten** is construed as trajector-object; while in the resultative BA-construction, the rest of the elements of the eating CEF can be construed as trajector-object and all of them are further specified of their resultative states. The table 7.2 below illustrates the possible trajector-objects in the BA-sentences 23-30, along with their profiled final goal or resultative state.

⁶ Q: question particle.

Table 7.2 Final goal or resultative states of trajector elements

Example	trajector-object		Final goal
23	eaten	<i>suan-zao</i> (sour date)	<i>zui-li</i> (inside the mouth)
24	eaten	<i>jia-tu</i> (domestic rabbit)	<i>du-zi-li</i> (inside the stomach)

Example	trajector-object		Resultative state
25	provider	<i>Ai-lin-na</i> (Alina)	<i>sou-sou-de</i> (slim)
26	container	<i>wan-pan</i> (bowl and plate)	<i>gan-gan-jing-jing</i> (clean)
27	eater	<i>wo</i> (I)	<i>du-zi zhang</i> (stomach burst)
28	goal	<i>zui</i> (mouth)	<i>qi-pao</i> (having mouth blisters)
29	AZ	<i>ya-ci</i> (teetch)	<i>hei</i> (black)
30	goal	<i>du-zi</i> (stomach)	<i>zha</i> (burst)

These final goals or resultative states associated with their respective caused-motion or resultative BA-constructions are all realised as the sentence-final location phrases or resultative phrases.

The astonishingly rich trajector-object variants in Chinese resultative BA-constructions can be well accounted for by the profiling patterns together with the force-dynamic schema (Talmy 2000) operating in the larger scope of the CEFs I have proposed. In Talmy's force-dynamics theory, entities "interact with respect to force" (Talmy 2000: 409). I go further to generally claim that every possible entity of the expanded CEF can all be involved in a certain interaction. The interaction as such makes all the participating entities involved to be affected in one way or the other. Every affected entity can be further specified with a certain result. Such entities are said to be construed as trajector-objects in various BA-constructions.

In the Examples of eating CEF, all the frame elements – i.e. eater, eaten, mouth, teeth, stomach, provider and container, as illustrated in Table 7.2 above, are all involved in various interactions of eating events. They can all be construed as trajector and realised as the grammatical object in Chinese BA-constructions.

Different languages may construe such force-dynamic potentiality differently. In comparison

between the Chinese eating event and the English counterpart, the drastic difference is easily observed. In Chinese, all the elements of the eating CEF can be construed as trajector-object (see 23-30). In English, only the element **eaten** can be construed as trajector-object if the verb eat appears in the sentence; while other elements cannot (see 31 and 32).

31 He was eating a sandwich. [eaten-trajector]

32 *the sandwich ate me sick. [eater-trajector]

English speakers take the **eater** as the trajector-object only if some other verbs are used. For example:

33 The sandwich made me sick. [eater-trajector]

In comparison with English, Chinese is a highly construing-free language in which all the possible potential CEF elements can be construed as trajector-object; yet English is a relatively construing-constrained language in which very limited number of CEF elements can be construed as trajector-object. This profile-patterning difference leads to the statement that Chinese verb *chi* (eat) can co-occur with more trajector-objects than their English counterparts. Such a profiling difference can be well captured within the CEF, which offers an adequate account of the possible choices of trajector-object.

7.4 Choices of trajector

The Chinese BA-constructions have a rich variety of trajector-object options. However, some of them are more likely to be construed as an object than others. The question I am addressing in the following is that which elements are possible to be chosen as trajector-object in the resultative BA-construction?

The answer to the question is very simple. Every possible element of a CEF, whether it is a core element or a peripheral one, has the potential of being chosen as the trajector-object of BA-construction.

Now, it is worthwhile to discuss various Chinese BA-sentences with the predicate *wa* (dig) (see 34a-d). A digging CEF, at least, contains the core elements digger and dug and the peripheral

elements dig-for (the entity which is searched for in digging) and instrument. Each of them can be construed as a trajector-object in a resultative BA-construction (see 34a-c) or one in a caused-motion BA-construction (see 34d-e). All these five exemplified BA-sentences convey the message that they were digging. 34a designates that they broke the antique in digging. 34b designates that they broke the spade in digging. 34c designates that their lower-back hurt in digging. 34d specifies the earth was moved away in digging and 34e designates that their digging attracted policemen over.

34a *ta-men ba gu-dong wa sui le* [dig-for as trajector]

They BA antique dig broken PAR

‘They broke the antiques in digging.’

34b *ta-men ba tie-qiu wa duan le* [instrument as trajector]

They BA spade dig broken PAR

‘They broke the spade in digging.’

34c *ta-men ba yao wa teng le* [a part of the digger as trajector]

They BA lower-back dig hurt PAR

‘Their lower-backs hurt in digging.’

34d *ta-men ba tu wa zou le* [dug trajector]

They BA earth dig away PAR

‘They dug the earth away.’

34e *ta-men ba jing-cha wa lai le* [‘remotely-related’ trajector]

They BA cop dig come PAR

‘They attracted cops to come because of the digging.’

The frame elements were chosen as trajector-object and their resultative states or final locations illustrated in 34a-e can be simply represented in 35a-e below.

- 35a The antique was broken.
- 35b The digging spade was broken.
- 35c The digger's lower-back hurt.
- 35d The earth was moved away.
- 35e The policemen came.

In terms of the semantic array of a verb, linguists seem to come to the consensus that the verb is described as the array of participants (Rappaport and Levin 1998, Pinker 1989, Boas 2011, Goldberg 1995). The verb *wa* (dig), for example, is described as a semantic array of two participant roles – i.e. digger and dug. Obviously, only these two participant roles are not enough to account for the five BA-sentences (see 34a-e). As illustrated in 35a-e, the profiled elements chosen as trajector-object in Chinese BA-constructions have a much wider scope, much wider than the semantic array of a verb. The digging CEF permits much richer encyclopaedic knowledge, which includes not only digger and dug, but also the dig-for element (see 34a), instrument element (see 34b), body-part element (see 34c) and even the extended element such as policeman (in 34e).

The Force-dynamic Schema proposed by Talmy (2000), as I argued previously, offers some help in discussing the motivation of various choices of trajector. However, it cannot explain why some CEF elements are more likely to be construed as the grammatical object than others.

It seems that Dowty's definition of the typicality of the prototypical proto-patient captures the generalisation. Dowty (1991: 573-574) defines the Proto-Patient as an entity that

- 1 undergoes a change of state,
- 2 is an incremental theme,
- 3 is causally affected by another participant,
- 4 is stationary relative to movement of another participant,
- 5 does not exist independently of the event named by the verb.

According to Dowty's definition, the argument which contains the greatest number of the entailments listed above is said to be chosen as the direct object. I argue that such typicality prediction is inapplicable to some Chinese BA-constructions. Example 36, for instance, contains both the digger and the dug. According to Dowty's analysis, the dug participant is predicted to be

chosen as the grammatical object. Yet, it turns out that the digger can also function as the trajector-object. Example 36 conveys the message that digging this pile of earth made us miserable.

- 36 *na-dui tu ba wo-men wa ku le*
 That pile earth BA we dig miserable PAR
 ‘Digging that pile of earth made us miserable.’

One more thing cannot be neglected is that many peripheral elements which are excluded from verb event can also be chosen as grammatical object. The elements include dig-for, instrument, part-of-digger and even the remotely-related element such as policemen in 34e. These elements are all excluded from the digging verb event. However, they all have the potential of being chosen as the trajector-object in BA-constructions. That is, even Dowty’s typicality view of Propo-Patient fails to account for these peripheral elements.

In the CEF approach, all the core and peripheral elements, as I argue, have the potential of being chosen as trajector-object. However, not all the elements have the same distributions. The dug element, for instance, is more likely to be chosen as trajector-object than the digger. In other words, the dug is a more typical trajector-object than the digger. It is also observed that more instances of dug trajector-object are found. The typicality of a trajector element in this sense may correspond with its token frequency. I will redress this issue with statistical data in Chapter Nine.

7.5 Necessity of profiling patterns

As it has been successfully argued, to adequately account for various choices of conceptual elements for trajector-object, it is necessary for an adequate theoretical model to have expanded force-dynamic patterns. The expanded force-dynamic patterns require expanded CEFs. In other words, to build an adequate theoretical model applicable to Chinese BA-constructions with variations of trajector-objects, both the expanded force-dynamic patterns and the expanded coherent CEFs upon which the force-dynamic patterns superimposed are indispensable. However, both the force-dynamic patterns and the CEFs only account for the necessary linguistic knowledge for understanding various BA-constructions. In an actual cognitive process, the model also needs the profiling patterns to choose a particular CEF elements for topic-subject and trajector-object. In each case of Sentences 34a-c, for example, the profiling mechanism works to choose a particular

element for the trajector-object.

Chinese BA-constructions, as discussed previously (see 34a-c), have various trajector-objects. To be more specific, in these exemplified BA-sentences, the same resultative BA-construction with the same verb *wa* (dig) can have various trajector-objects. In Goldberg’s (1995) fusion model, the same verb meaning integrated into the same argument structure is supposed to generate the same constructional meaning. However, in reality, the opposite is true. That is, the same resultative BA-construction with the same verb can produce different constructional meaning. Sentences 37a and 37b are such two BA-sentences. 37a conveys the message that someone ate up the rice cake. 37b conveys the message that someone made his gum swollen in eating.

37a *ba ba-ba chi diao le* (CCL)

BA rice cake eat fall PAR

‘[Someone] ate up the rice cake.’

37b *ba ya-chuang chi zhong le* (CCL)

BA gum eat swollen PAR

‘[Someone] made his gum swollen while eating.’

Both 37a and 37b contain the same verb with the same sense. They also have the same syntactic structure. These two BA-sentences share the same skeletal (in Goldberg’s term) resultative construction which reads that X causes Y to become Z (see Table 7.3 for comparison).

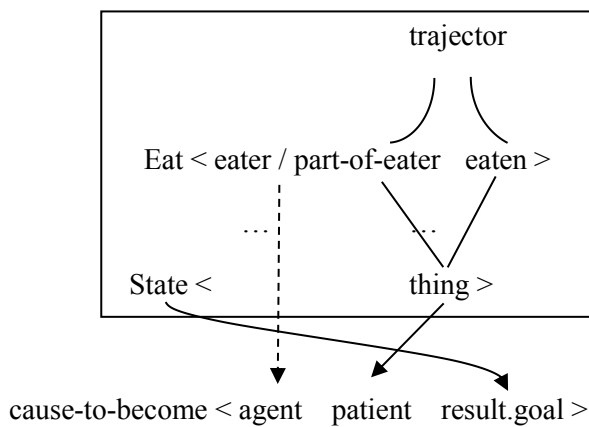
Table 7.3 Two different resultative constructions

Example X		Y	Z
37a	rice cake	eaten	gone
37b	gum	part-of-eater	swollen

However, there is an obvious semantic difference between the two BA-sentences. *Ba-ba* (the rice cake) in 37a plays the **eaten** participant role of the *chi* (eat) verb, while *ya-chuang* (gum) in 37b is understood as the part of the eater. They play different participant roles.

7b In the CEF, which represents a wider realm of the encyclopaedic knowledge for understanding sentences, the peripheral element is included. Some peripheral element, such the part-of-eater *ya-ying* (gum), can even be profiled and treated as trajector-object. In the CEF analysis, the unmatched *ya-chuang* (gum) (see 37b) is no longer a problem. Within the perspective of experiential knowledge, it is possible that one's gum, to some extent, can be affected in eating events. Chinese is such a language, I argue, which allows all the possible frame elements possibly involved in some interaction to be construed as trajector-object. Based on the existence of such expanded CEF, different particular profiling patterns can be superimposed upon the CEF and produce different resultative BA-constructions. In other words, in the real cognitive process, the force-dynamic patterns of CEF allow different elements to be chosen as trajector-object in different substant resultative BA-constructions, such as 37a and 37b. Both the BA-sentences have the same CEF. However, different profiling patterns are superimposed on this eating CEF. In other words, either the part-of-eater or eaten is chosen to be bound with the thing of the state sub-event (see 37c).

37c



The particular choice of binding is made as choice of trajector and determines the participant which is fused with the patient of the resultative BA-construction (see 37c).

7.6 Summary

Up to this point of discussion, the study of BA-constructions helps to unfold the internal characteristics of CEFs. We are coming to realise that the expanded CEF of sentences on which various force-dynamic patterns are superimposed can be accounted for with various bindings

instead of the fusion mechanisms by Goldberg (1995). The force-dynamic theory can be further specified as various profiling patterns. That is, different CEF elements in the flow of discourse can be chosen as the topic for discourse coherence. More importantly, different CEF elements of expanded CEFs with different strength of force all have the potential of being profiled and chosen as trajector-object of BA-constructions.

The profiling patterns can be formally represented as various bindings CEF elements across sub-events. These bound elements, then are fused with argument roles of constructions. Such detailed bindings do not appear in theoretical models heavily relying on the direct relation between the narrowly delimited verb event and its construction. Such models fail to offer an adequate account of BA-constructions with different trajector-objects. They also fail, as I have argued, in the account of the different BA-sentences which belong to the same type of BA-construction containing the same verb. Their problems can be solved with the expanded CEFs on which various profiling patterns superimposed.

I have also argued that in a cognitive process, a particular trajector-object choice out of the CEF elements is made in adherence to the profiling patterns. That is, the element which is specified of its location, possession or state is more profiled and is chosen as the trajector-object in the BA-construction it occurs.

The profiling patterns can be analysed as various choices of topic-subject and trajector-object. My analysis has demonstrated that Chinese resultative BA-constructions can have various choices of trajector-object. The motivation of this variation is due to the extended Force-dynamic Schema, operating with its related CEF as well as profiling patterns.

However, not all the CEF elements are equally attracted to a particular BA-construction, such as, for instance, the resultative BA-constructions. In a particular BA-construction, some elements are more likely to be construed as trajector-object than others. Their differences will be further studied in the collocation analysis in Chapter Nine.

8 Family of BA-constructions

8.1 Introduction

I have argued that Chinese BA-constructions cannot be treated as a uniformed construction. Instead, they should be analysed as a family of variants (cf Goldberg and Jackendoff 2004a). The reason behind this claim is that Chinese BA-constructions vary greatly in meaning as well as syntactic structure. The complicity of Chinese BA-constructions is not merely manifested in their internal structures as being discussed in the previous five chapters, but also in their different and yet related variants. In this chapter, the attention will be focused upon various intra-relations among these various BA-constructions and their token frequency.

BA-constructions vary with degrees of entrenchment measured with their frequency. The most frequent variant can then be recognised as the typical variant or the prototype (Lankger 2008). One of the tasks of this chapter is to find out the typical variant of BA-constructions. To do so, I set up the Option Principle based on the network of BA-constructions.

I reasonably contend that Chinese BA-constructions with their complicated, interrelated variants are organised into a family. I will also argue that the family members of BA-construction are related to form a taxonomical network with various levels of specificity. This network is built merely upon the sub-type of BA-construction in regard to their raw-frequency. This network is not designed to model our mental grammar. It is a network, helping to illustrate the possible relations among various types of sub-types in regard to the correspondence between the specificity of BA-constructions and their raw-frequency and the semantic match between verb and BA-construction of various levels in the collostructional analysis as conducted in the following Chapter Nine.

At the top level, Chinese BA-construction is treated as a ‘general’ construction with variation potential. Down below, this ‘general’ BA-construction can be further specified into various members. I argue that these members of BA-construction family with various degrees of specificity can be positioned at various levels of a taxonomical network.

BA-construction variants have different token frequency counts. Based on the taxonomical network, I propose the Option Principle. This Option Principle is able to predict the frequency rank of variants.

Along the line of this argument, The BA-construction family is adequately accounted for at

various levels. Section 8.2 offers a general description of BA-constructions and introduces various perspectives of their variations. Section 8.3-8.6 give detailed descriptions to BA-construction variants. Section 8.3 discusses and compares the two major types – i.e. the explicit BA-construction and the implicit BA-construction. Section 8.4 offers an account for the implicit BA-constructions. Section 8.5 focuses on three major variants of the caused-change BA-constructions. Section 8.6 studies the Z variants of the explicit BA-constructions and their token frequency. Based on the fine-grained analysis and description of the variants, Section 8.7 argues for the adequacy of the Option Principle.

8.2 Perspectives of variations

Various Chinese BA-constructions are organised into a network composed of various levels. At the top level is positioned the general BA-construction. The conceptual meaning of BA-constructions can be generalised as follows.

Some event or an entity X is construed as to cause another entity Y to be involved in a possible change, whose changing process is possibly specified with the result Z.

The general Chinese BA-construction contains at most three semantic components. They are the cause X, the theme or patient Y, and the result Z. In turn, they can link with their respective syntactic unit formalised as follows.

Sem:	CAUSE	< (X)	Y	(Z)	>
Syn:	(Pred)	(NP ₁ /minor-Clause)	BA-NP ₂	(XP)	

This top-level representation is general in the sense that it carefully includes all the possible instances of BA-constructions. Yet, it is not general enough to offer a detailed representation of all the BA-constructions in the sense that this general representation itself contains many possibilities of variation. That is the reason that Chinese BA-constructions cannot be adequately accounted for as one unitary construction. It is adequate to treat them as a family of BA-constructions.

The variations of the general BA-constructions can be studied in the three options. By option, it is meant that the component under question is either overtly expressed or unexpressed. The three

components as illustrated above can all be expressed in a BA-sentence. Yet, only the component Y which is realised as BA-NP₂ is obligatory, while the other two –i.e. both X and Z – are optional. Even the main verb of BA-construction is optional as well. These three options lead to quite a few variants.

BA-constructions vary greatly. At least two reasons of their variations are worth discussing. The first obvious reason is that the three out of the four components (including the predicate verb) are optional. Each of the optional components at least leads to two variants. The second reason is that each of the four components can be substantiated into several sub-components.

The variants are properly studied at least within four important perspectives. They are the perspective of specificity, the perspective of Z-XP, the perspective of predicate verb, the perspective of trajector.

BA-constructions vary in the degree of specificity. The optional Z-XP leads to two major variants – i.e. implicit BA-constructions and explicit BA-constructions (see Section 8.2.1). The explicit BA-constructions are more specific than the implicit BA-constructions. The Z-XP of the explicit BA-constructions is also further specified. In other words, the explicit BA-constructions vary with different choices of Z-XP. That is, the caused-change of the explicit BA-constructions denoted by Z-XP can be further specified as the change of location, the change of state and the change of possession (see Section 8.2.2). It is also observed in the BA-sentence data, the explicit BA-constructions with overt predicate verbs are more specific than those without overt predicate verbs (see Section 8.2.3). BA-constructions enjoy a wide choice of trajector-object. Even the same sub-type of BA-construction, such as the resultative BA-construction or the caused-motion BA-construction, can be construed differently with different trajector-object choices (see Section 8.2.4).

8.2.1 Perspective of specificity

As it was previously discussed, two of the three components of Chinese BA-constructions are optional. The BA-construction with the overtly expressed component is more specific than that without it. In this perspective of specificity, the ‘general’ BA-construction can be further divided into various degrees of specificity.

The result Z-XP component in BA-construction, for instance, is optional. Following the given definition, The BA-construction with the Z-XP is more specific than that without it. Thus, the

The selection of the optional component Z-XP is simply called Z option.

Both the implicit BA-construction and the explicit BA-construction of the Z option can be further divided into more specific BA-constructions. Their sub-types will be discussed in Section 8.4 and Section 8.5 respectively.

8.2.2 Perspective of caused-change

The second perspective worth discussing is the perspective of experiential reflection of language. Goldberg (1995) claims that human basic experiences are reflected in basic constructions, such as the caused-motion construction, the resultative construction and the ditransitive construction. Within this perspective, I contend, the caused-change of the explicit BA-constructions can be further specified and divided into three major types according to the types of their respective result Z-XP. That is, the caused-change is specified as a change of location (see 2a), a change of state/property (2b) or a change of possession (2c). Within this perspective of study, the BA-constructions, then fall at least into three types – i.e. caused-motion BA-construction, resultative BA-construction and caused-transfer BA-construction.

The caused-change in the throwing event, for example, can be the change of location in the caused-motion BA-construction (see 2a), the change of state in the resultative BA-construction (see 2b) and the change of possession in the caused-transfer BA-construction (see 2c). 2a conveys the message that he threw the ball into the basket; 2b conveys the message that he threw the ball and consequently broke it; 2c conveys the message that he threw the ball to the umpire.

2a *ta ba qiu reng jin le lan-kuang* [change of location]

He BA ball throw enter ASP² basket

‘He threw the ball into the basket.’

2b *ta ba qiu reng po le* [change of state]

He BA ball throw broken PAR

‘He threw the ball, and consequently broke it.’

² ASP designates aspect marker

2c *he ba qiu reng gei le cai-pan* [change of possession]
 He BA ball throw give ASP judge
 ‘He threw the ball to the umpire.’

All the three major types of change can be understood generally as the caused-change. They are the three specific types of the general BA-construction. In other words, the result Zs of the three types are specified by their respective different XPs. In 2a, the Z is specified as the change of location expressed by the postverbal phrase *jin le lan-kuang* (enter the basket). In 2b, the Z is specified as the change of state expressed by the postverb *po* (broken). In 2c, the Z is specified as the change of possession by the postverbal phrase *gei cai-pan* (to the umpire). Since these three sub-types of BA-constructions all contain the explicit Z. They are positioned immediately down below the level of the explicit BA-construction (see Figure 8.2).

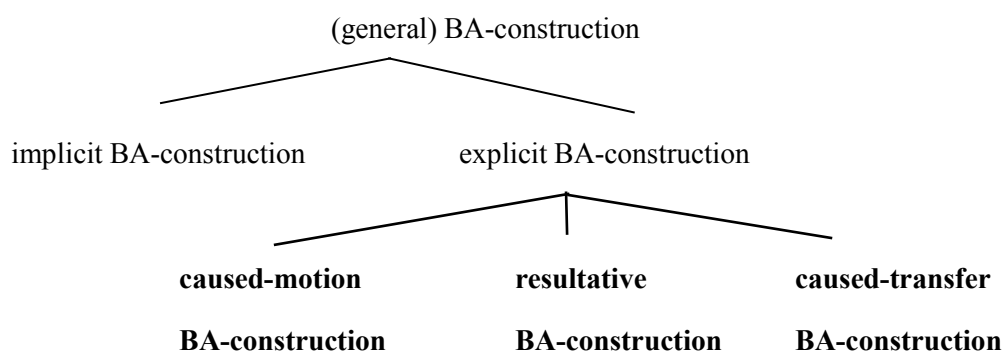


Figure 8.2 Experiential perspective of BA-construction

8.2.3 Perspective of predicate verb

Examining the BA-construction in the perspective of predicate verb helps to distinguish the BA-constructions with overt main verbs from those without main verbs. These two types of BA-constructions can be compared in the following pair of BA-sentences. Both the BA-sentences convey the message that someone laid the napkin with its crease forward.

3a *ba can-jing de zhe-feng bai chao-qian*
 BA napkin POS crease lay forward
 ‘[Someone] laid the crease of the napkin forward.’

- 3b *ba can-jing de zhe-feng chao-qian* (CNC)
 BA napkin POS crease forward
 ‘[Someone laid] the crease of the napkin forward.’

The only difference between them is that in 3a, there is an overt main verb *bai* (lay) and in the verbless BA-construction illustrated in 3b, there is no main verb. Even so, they convey the same message.

I have observed that in the verbless BA-constructions, the Z-XP becomes the obligatory component. Thus, the verbless BA-constructions all fall into the explicit BA-constructions. The implicit BA-construction must contain a main verb. I have also observed that both the caused-motion BA-constructions and the resultative BA-constructions can have verb-verbless variations, while the caused-transfer ones cannot.

8.2.4 Perspective of trajector

The construing process of BA-constructions, as discussed in Chapter Seven, can be represented through CEF with its different profiling. In the case of CEF construing patterns, two issues are worth discussing. First, the same CEF evoked by the same verb can be construed into different BA-constructions with different types of caused-change. Both 4a and 4b, for example, contain the same main verb *sai* (stuff) followed by *man* (full) and convey the message that someone stuffed something into somewhere. 4a conveys the message that someone tucked the drawer with peanut peels; 4b conveys the message that someone stuffed and filled the broken iron wok with wood.

- 4a *ba chou-ti li dou sai man le hua-sheng-pi* (CNC)
 BA drawer inside all tuck full ASP peanut peels
 ‘[Someone] tucked the drawer with peanut peels.’

- 4b *ba mu-tou sai man zai yi-ge po tie guo li* (CNC)
 BA wood stuff full in one broken iron wok inside
 ‘[Someone] stuffed and filled the broken iron wok with wood.’

Although they share the same stuffing/tucking CEF, their construing BA-constructions and trajector-objects are not the same. In 4a, the final location *chou-ti* (drawer) is the trajector (i.e., BA-marked entity); while in 4b, the stuffed *mu-tou* (wood) is. Although the two alternating BA-constructions have slightly different meanings, the message they convey is the same. That is, someone stuffed something into somewhere.

Second, it has been discovered that even the same construction with the same verb can have different trajector-objects. Both 5a and 5b, for instance, convey the message that someone cut something and some other thing happens. 5a conveys the message that someone cut down the tree; 5b conveys the message that someone did the cutting and broke the knife as a result.

5a *Ba shu kan duan le*

BA tree cut broke PAR

‘[Someone] cut down the tree.’

5b *Ba dao kan duan le*

BA knife cut broke PAR

‘[Someone] did the cutting and broke the knife as a result’.

Both the BA-sentences belong to the resultative BA-construction. Yet, their trajector-objects are different. The trajector-object of 5a is the cut *shu* (tree), while the one of 5b is the tool *dao* (knife).

In comparison of the two different trajector-objects, it is reasonable to state that the choice of trajector-object can be made at the level of more specific explicit BA-construction, such as the caused-motion BA-construction and the resultative BA-construction (see Figure 8.3).

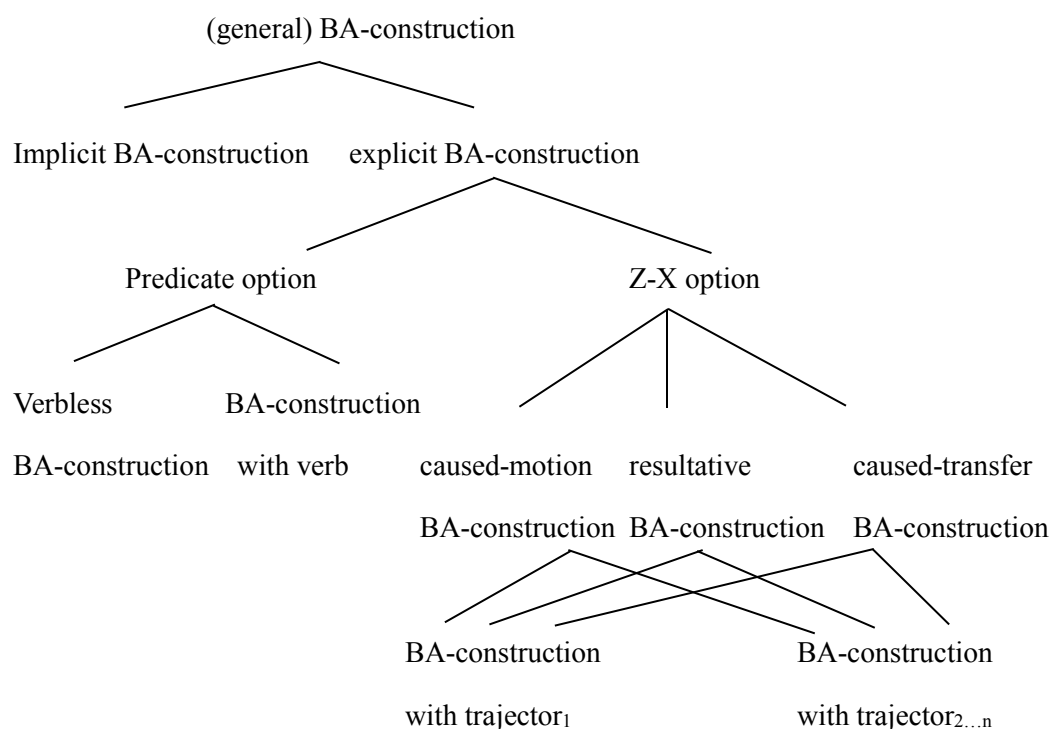


Figure 8.3 Hierarchy of BA-construction

Up to this point of discussion, four levels have been established (see Figure 8.3). Both the implicit BA-construction and the explicit BA-construction are positioned at the second level; The three basic BA-constructions are positioned at the third level. Their trajector-object variants are positioned at the fourth level.

The family of BA-constructions demonstrates variants of BA-constructions. To better account for the interrelations among various BA-constructions, I have proposed the four perspectives of the study. The following sections will discuss in detail the three of the four perspectives. Section 8.3 deals with verbal-verbless variation. Section 8.4 explores implicit BA-constructions. Section 8.5 focuses the study on the explicit BA-constructions. Section 8.6 discusses explicit BA-constructions in terms of their Z realisations. I also discuss the usage distributions of these variants and their supporting statistical data.

8.3 Types of predicator

The verb-verbless variation reveals two types of predicator slots. The predicator slot of BA-constructions is mostly filled by a verb. For example, 6a conveys the message that tomorrow someone will load the boat with hay. 6b conveys the message that someone took the kid to the field.

6a *ming-tian ba cao zhuang chuan*
 Tomorrow BA straw load boat
 ‘[Someone] will load the straw onto the boat tomorrow.’

6b *ba xiao-hai dai dao tian-li*
 BA kid take reach field
 ‘[Someone] took the kid to the field.’

The predicator slot in 6a is filled by merely the verb *zhuang* (load), while that in 6b is filled by the verb *dai* (take).

The second type of the predicator has no overt expression. I call the BA-construction with such unexpressed predicator as verbless BA-construction (its detailed discussion carried out in Chapters Six and Seven). For example, 7a conveys the message that the disease made him deaf and 7b conveys the message that someone took getting rid of the patients’ pain as one’s own mission.

7a *hai chang bing ba er-duo long le*
 Fall QUA illness BA ear deaf PAR
 ‘The disease [he had] made [him] deaf.’

7b *ba jie-chu bing-ren tong-ku wei ji reng*
 BA get-rid-of patient pain as own mission
 ‘[Someone] took getting rid of the patients’ pain as one’s own mission.’

Both 7a and 7b contain no predicator verb. The postverbals merely follow empty predicator slot. Their postverbals are specified as the adjective *long* (deaf) in 7a and the prepositional phrase, *wei ji ren* (as one’s own task) in 7b.

In the comparative study of verb-verbless BA-constructions, two interesting discoveries are worth reporting. Firstly, I have noticed that if the predicator slot remains unfilled, the postverbal XP realising the Z must be overtly expressed, such as the adjective *long* (deaf) in 7a and the prepositional phrase *wei ji ren* (as one’s own task) in 7b. Secondly, the BA-constructions with overt main verb are more frequent and more typical than verbless BA-constructions. My CNC data

demonstrated that the token-frequency of BA-constructions with the overt verb (3,0361) is much higher than that of verbless BA-constructions (54) (see Figure 8.4).

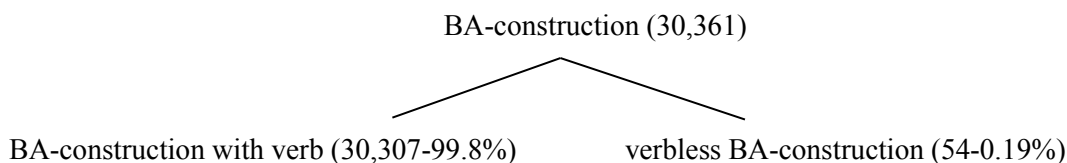


Figure 8.4 Statistics of verb-verbless BA-constructions

8.4 Types of implicit BA-constructions

The implicit BA-constructions are positioned at the second level immediately down below the top-level ‘general’ BA-constructions. The implicit BA-constructions are the constructions with no overt *Z* expression. In other words, the implicit BA-constructions contain no overtly expressed result *Z*. Although the implicit BA-construction contains no *Z*, its main verb must be obligatory and is accompanied by various modifying components or a sentence particle. I have noticed three types of such components. They are the completion particle *LE* (see 8a), the copying verb (see 8b) and the verb quantifier (8c). All these three exemplified BA-expressions contain the same verb *chu* (hoe) and convey the same message that someone hoed the weeds.

8a *ba za-cao chu le*
 BA weeds hoe PAR
 ‘[Someone] hoed up the weeds.’

8b *ba za-cao chu-chu*
 BA weeds hoe-hoe
 ‘[Someone] hoed weeds.’

8c *ba za-cao yi-chu*
 BA weeds once hoe
 ‘[Someone] hoed weeds.’

The verb in 8a is followed by the completion particle *LE*, which works as both a completion aspect marker (denoting the completion of the action) and a complete sentence particle (denoting the completion of the event). The completion of the hoeing action as well as the hoeing event, as illustrated in 8a, leads to the implication of the consequence that the weeds likely disappear. In this sense, the possible change, though not overtly expressed, is implied. The verb in 8b is followed by a copying verb, encoding the repeated hoeing actions. Repetition of actions expressed by a copying-verb may more likely affect the acted entity than a single action does. Such BA-expression leads to the inference that the weeds possibly disappear after a series of hoeing actions. The same verb preceded by the quantifier *yi* (one) in 8c emphasises the event of hoeing. This single action is intuitively understood as being completed and emphasised.

The possible implication of the affected entity expressed by the verb and its quantifier can be supported by 9, 9a and 9b below. Examples 9 denote that *Jin-ming* took off his jacket and jumped into the sea.

- 9³ *Jin Ming ba wai-yi yi-tuo, tiao ru hai-zhong* (CNC)
Jin Ming BA jacket take off, jump enter sea
 ‘*Jin Ming* swiftly took off his jacket and jumped into the sea.’

If 9a and 9b are comprehended in the same situation which Example 9 evokes, then 9a is adequate while 9b is odd. Why these 9a and 9b have different acceptability is this. Since *Jin Ming* took off his jacket, he could not at the same time had it on.

- 9a *ta ru hai shi mei chuan yi-fu*
 he enter sea time not wear clothes
 ‘When he jumped into the sea, he didn’t wear any clothes.’

- 9b *#ta ru hai shi chuan zhe yi-fu*
 he enter sea time wear C-ASP⁴ clothes
 ‘When he jumped into the sea, he was wearing clothes.’

³ This BA-sentence is taken from CNC and the following two sentences 9a and 9b are added by the author.

⁴ C-ASP designates the continuous aspect marker.

Besides the three basic types of the accompanying units –i.e. the completion *LE*, the copying verb and the verb-quantifier – I have observed that some combinations of these types are also possible. The Chinese copying-verb can have an inserted completion aspect marker (see 10a) or a verb-quantifier (see 10b). Both the exemplified BA-expressions denote the hoeing event and the caused-change implication.

10a *ba za-cao chu-le-chu*
 BA weed hoe ASP hoe
 ‘[Someone] hoed weeds.’

10b *ba za-cao chu-yi-chu*
 BA weed hoe-one-hoe
 ‘[Someone] hoed weeds.’

Intuitively, the copying verb together with a completion marker denotes a more intensifying degree of the action force. In the case of copying verb, the stronger force that the agent exerts on its acted-upon entity is understood. I name this the **Quantity Iconic Principle**, which reads that the repeated action (or state) is understood to have some stronger force (or higher intensity of the state). This principle is applicable not only to the copying-verb as illustrated in 10a and 10b but also to the copying-adjective 11b. Both 11a and 11b convey the message that this piece of cloth was red. However, they suggest different degrees of redness.

11a *zhe kuai bu shi hong de*
 This piece cloth is red POS⁵
 ‘This piece of cloth is red.’

11b *zhe kuai bu hong-le-hong*
 This piece cloth red ASP red
 ‘This piece of cloth is very red.’

⁵ POS designates possessive marker.

10a contains one adjective *hong* (red), while 11b contains an extra copying-adjective. 11b with the copying adjective *hong le hong* (red) gives the reading that the cloth is much redder than the cloth illustrated in 11a.

The Quantity Iconic Principle also covers the verb modified by a quantifier phrase, such as *liang-bian* (twice) in 12. Example 12 conveys the message that someone hoed the weeds twice.

- 12 *ba za-cao chu le liang-bian*
 BA weed hoe ASP twice
 ‘[Someone] hoed weeds twice.’

The repetition of the hoeing event leads to the meaning that the weeds were more likely affected.

The Chinese implicit BA-constructions have much simpler internal structure than the explicit ones in the sense that there is no Z-XP element in the implicit BA-constructions. In my statistical analysis, I have found that the implicit BA-constructions have much lower type-frequency than the explicit BA-constructions. The explicit BA-constructions, I have found, also enjoy a bigger token-frequency (28,051) than that of the implicit BA-construction (2,256). (see Figure 8.5).

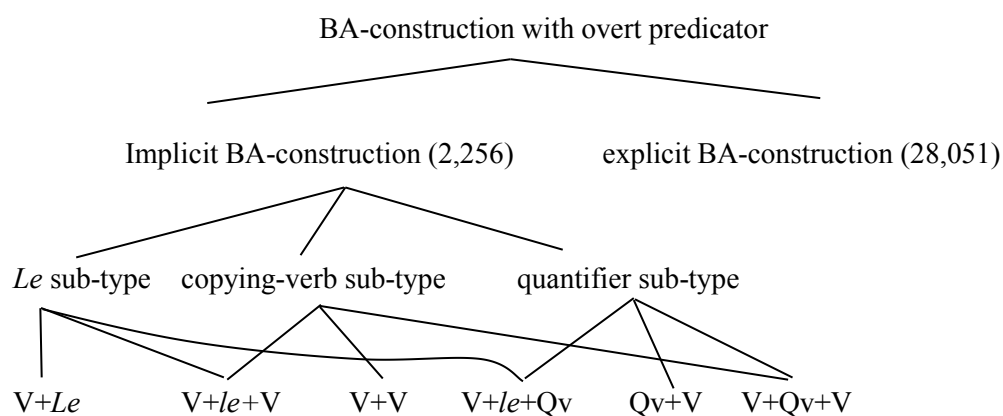


Figure 8.5 Implicit BA-construction Taxonomy

Thus, from both the perspectives of type-frequency and token-frequency, the implicit BA-constructions have much more limited usage distribution than the explicit BA-constructions and they are less typical in contrast against the explicit BA-constructions.

In sum, the implicit BA-constructions differ from the explicit ones in the way that the former

does not have any overt result Z-XP. The possible caused-change is merely implied via the verb together with their modifying elements, including the completion-aspect marker *LE*, the copying-verb, the verb-quantifier, and various combinations of these basic units (see Figure 8.5 above). While the complicated explicit BA-constructions contain the result Z-XP, which can be further specified. Section 8.5 below discusses the three basic types of BA-constructions with three different types of Zs.

8.5 Types of explicit caused-change

In the explicit BA-constructions, the Z-XP overtly expresses the causative result. The causative result Z-XP, of course, presupposes the process of caused-change. The causative result Z-XP can be further specified as three types of caused-change – i.e. the change of location, the change of state and the change of possession. The explicit BA-constructions, thus, can be further specified as the caused-motion BA-construction, the resultative BA-construction and the caused-transfer BA-construction.

The three basic types can even be related to the same CEF as a CEF can be construed into BA-constructions with different profiling. The kicking CEF, for instance, can have three different choices of the resultative Z-XP in three respective BA-constructions (see 13a, 13b and 13c). All the three BA-sentences convey the message that he kicked the ball and made it change in a certain way. 13a denotes that he kicked the ball into the goal (the change of location); 13b denotes that he kicked and broke the ball (the change of state); 13c denotes that he kicked the ball to her (the change of possession). The same kicking action expressed by the verb *ti* (kick) can extend to these three different types of caused-change. The trajector-object *qiu* (ball) can be involved in a change of location (see 13a), a change of state (see 13b) or a change of possession (see 13c).

13a *ta ba qiu ti jin qiu-men* [caused-motion BA-construction]
 He BA ball kick enter goal
 ‘He scored.’

13b *ta ba qiu ti po le* [resultative BA-construction]
 He BA ball kick broke PAR
 ‘He kicked and broke the ball.’

13c *ta ba qiu ti* *gei ta* [caused-transfer BA-construction]
 He BA ball kick give her
 ‘He kicked the ball to her.’

The *Z* can be realised as a direction postverb followed by an NP in a caused-motion BA-construction, such as *jin qiu-men* (enter the goal) in 13a. The *Z* can be realised as a resultative postverb in a resultative BA-construction, such as *po* (broken) in 13b. It can also be realised as a *gei*-postverb plus an NP, such as *gei ta* (to her) in 13c. These three basic BA-constructions are treated as specific types of the explicit BA-constructions. My statistical data shows that caused-motion BA-construction has a higher token-frequency count and that the caused-transfer has lower token-frequency count (see Figure 8.6).

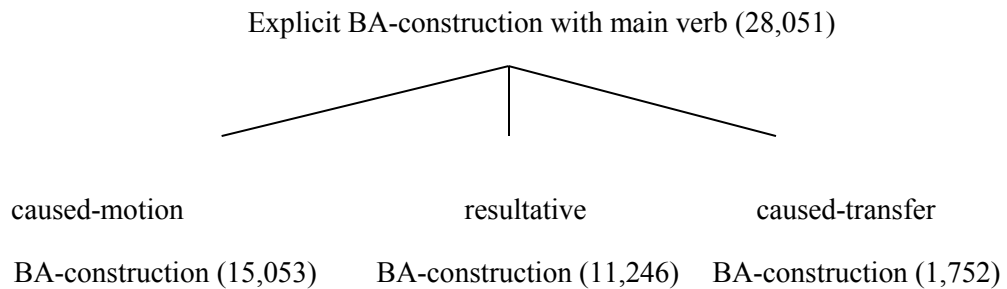


Figure 8.6 Three basic types of explicit BA-constructions

It is reasonable for cognitive linguists to claim as the principle of categorisation that the more frequent a member is, the more typical it is (Langacker 2008). In accordance of this categorisation principle, the caused-motion BA-construction is more typical than the other two since it enjoys a biggest token frequency count. In section 8.6, I focus on the detailed study of these three basic types.

8.6 Variation of Z-XP

I have noticed that not only the resultative Z can have variants, as discussed in the previous section, but also their expression XPs vary greatly. These causative XPs will be discussed in the aspect of their two syntactic positions – i.e. the preverbals and the postverbals (see Section 8.6.1). , The detailed discussion of both types will be unfolded in Section 8.6.2 and Section 8.6.3

respectively. The postverbals can have at least four types. Some types are composed of a post-word and its following NP (see Section 8.6.4), while others contain no post-word (see Section 8.6.5).

8.6.1 Syntactic positions of Z-XP

The Z-XP occurs in two different syntactic positions in BA-constructions. One is the slot before the main verb and the other one is the slot immediately following the main verb. I call the former type of Z expressions as preverbal (see 14a) and the latter, as postverbal (see 14b).

14a Sem: CAUSE < X Y Z >

Syn: NP₁/minor-clause BA-NP₂ **preverbal** V

14b Sem: CAUSE < X Y Z >

Syn: V_{main} NP₁/minor-clause BA-NP₂ V **postverbal**

The preverbal realising the Z is a phrase led either a preposition or a direction verb (see Example 15a). The postverbal realising the Z can also be a phrase. It can be a prepositional phrase or a postverbal phrase which contains a postverb plus an NP (see Example 15b). 15a denotes that someone pulled the chair from the meeting table, and 15b denotes that someone threw the clothes into the water.

15a *ba yi-zi cong hui-yi zhuo pang-bian la le yi-xia* [PP+V]

BA chair from conference table beside pull ASP once

‘[Someone] pulled the chair away from the conference table.’

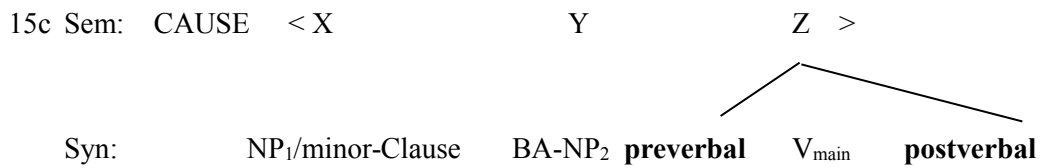
15b *ba zang yi-fu reng jin shui-li* [V+postverb +NP]

BA dirty clothes throw enter water inside

‘[Someone] threw the dirty clothes into the water.’

The Z specified as the source (i.e., the starting point of the action) in 15a is realised as the preverbal *cong hui-yi zhuo-bang* (from the side of the conference table) led by the preposition *cong* (from). The Z specified as the goal (i.e., the ending point of the action) in 15b is realised as the postverbal *jin shui-li* (enter the water) led by the postverb *jin* (enter). In this sense, the Z can be realised as

either a preverbal or a postverbal (see Structure 15c).



I have also noticed that the Z can even be realised as a combination of both (see 16). Example 16 conveys the message that someone forced me to move from the bright world into the dark hell.

- 16 *ba wo cong guang-ming-de shi-jie po jin le hei-an-de di-yu*
 BA I from bright world force enter ASP dark hell
 ‘[someone/something] forced me [to move] from the bright world into the dark hell.’

The main verb *po* (force) is both preceded by the preverbal *cong guang-ming de shi-jie* (from the bright world) and followed by the direction postverb plus an NP *jin-le hei-an di-yu* (enter the dark hell).

The different syntactic positions of the Z variants, I contend, obey the Chinese **Temporal Iconic Principle** (Cheng 2014). The sequence of **source**, **path** and **goal** serve as the three sequential points in a change process. In a real motion, for instance, the moving entity moves from the source via the path to the goal. Their three expressions are syntactically positioned in the same ordering. In other words, the sequential order of the three expressions reflects the same real motion.

I also argue that Chinese has two types of goal – i.e. the intended-goal (or I-GI in short) and the goal. The I-GI denoted that the goal is intended and planned before the action is executed (see 16a), while the goal designates the direction or the endpoint of the caused-change (see 16b). 16a conveys the message that someone led them onto the right track. 16b conveys the message that he sent his manuscripts to the newspaper himself.

- 16a *ba ta-men wang zheng-dao shang yin* (CNC)
 BA they towards right way up lead
 ‘[Someone] guided them to the right way.’

16b *ta qin-zi ba gao-jian song wang bao-she*
 He in person BA papers send towards press
 ‘He sent the papers to the press in person.’

The I-Goal in 16a overtly expressed by the preverbal *wang zheng-dao* (to right way) is positioned before the main verb. It denotes that the intention was made before the action was taking place. The goal in 16b expressed by the postverbal *wang bao-she* (to the newspaper) is positioned after the main verb. It denotes that the trajector *gao-jian* (manuscripts) was involved in a change of location after the sending action was executed. The syntactic position of the I-GI also observes the Temporal Iconic Principle in the sense that any intended goal is always made before the execution of the action.

The **Temporal Iconic Principle** also correctly predicts the syntactic difference between **source** and **I-GI** (see 17). Example 17 conveys the message that someone rolled the pole from the top of the dam downwards.

17 *ba dian-gan cong di shang chao di xia gun* (CNC)
 BA electric bar from bank up towards bank down roll
 ‘[Someone] rolled the electric pole from the top of the dam to the bottom.’

Sentence 17 contains both the source *cong di-shang* (from the top of the dam) and the I-Goal *chao di-xia* (towards the bottom of the dam). The main verb *gun* (roll) is at the end of the sentence. In a real situation, the original location of the trajector *dian-gan* (pole) can be observed even before the goal is planned. Interestingly, The **Temporal Iconic Principle** precisely predicts that the source precedes the I-Goal and that both are positioned before the main verb (see 17).

Although the Z in an explicit BA-construction can be realised either as a preverbal, a postverbal or both, they are not equally attracted to the explicit Chinese BA-constructions. In my statistical analysis, I have found that the explicit BA-construction containing postverbals has a greater token frequency as well as type frequency. This specific sub-type of the explicit BA-constructions (excluding the verbless ones) has much bigger token-frequency count (27,722) than the miserably dwarfed explicit BA-constructions containing preverbals (Figure 8.7). More than 98 percent of the explicit BA-constructions contain the postverbals.

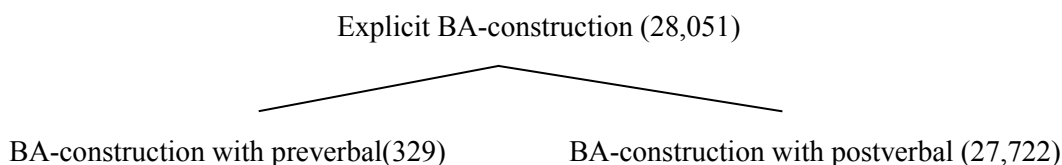


Figure 8.7 Preverbal vs. postverbals

Both type frequency and token frequency provide the evidence supporting the claim that the BA-constructions with postverbals are more typical than those with preverbals. I demonstrated in Section 8.5 that the typicality ordering of the three BA-construction types can be the caused-motion BA-construction, the resultative BA-construction and the caused-transfer BA-construction. Up till now, the prediction can be that the caused-motion BA-constructions with postverbals are more typical. Thus, we can further predict that the BA-constructions containing the goal as *Z* are more typical than those with other types of *Z*. To support this typicality claim, I further discuss preverbals and postverbals in Section 8.6.2 and Section 8.6.3 respectively.

8.6.2 Preverbals

The preverbals in BA-constructions can be linked with an NP led by a preposition or a direction verb, such as *cong* (from), *chao* (towards), *xiang* (towards), *wang* (towards), *dui* (to), *gen* (along), or *he* (together). These words fall into three categories – i.e. source, I-Gl and location. The preverbal phrase led by the preposition *cong* (from) links with source (see 18). 18 conveys the message that someone pulled the chair from the conference table.

- 18 *ba yi-zi cong hui-yi zhuo bang-bian la le yi-xia*
 BA chair from conference table beside pull ASP once
 ‘[Someone] pulled the chair away from the conference table.’

The preverbal phrases led by the prepositions *chao* (towards), *xiang* (towards), *wang* (towards) and *zai* (in/at/on) all fall into the category of I-Gl (see 19, 20, 21 and 22). 19 conveys the message that someone pushed the plate to me. 20 conveys the message that someone put the handkerchief into her hand. 21 conveys the message that someone grabbed the cotton-padded jacket from his shoulders and threw it to the ground. Example 22 conveys the message that *Zhu Ge-liang* put the right hand on his strong shoulder.

19 *ba cai-pan chao wo gen-qian yi-tui*
 BA plate towards I front once push
 ‘[Someone] pushed the plate towards me.’

20 *ba shou-juan xiang ta shou zhong yi-sai*
 BA handkerchief towards she hand inside once shove
 ‘[Someone] shoved the handkerchief into her hands.’

21 *ba jian-shang de mian-ao, wang di-shang yi-reng*
 BA shoulder POS cotton-padded jacket, towards ground once throw
 ‘[Someone grabbed] the cotton-padded jacket from his shoulder and threw it to the ground.’

22 *zhu-ge-liang ba you-shou zai ta hou-shi-de jian-bang shang yi-da*
Zhu, Ge Liang BA right hand on his strong shoulder up once put
 ‘*Zhu, Ge Liang* put his right hand on his (someone else) strong shoulder.’

To make the issue more complicated is that some of (but not all) the leading words in the preverbals discussed previously are also found in postverbals. They include *xiang* (towards), *wang* (towards) and *zai* (on). Examples 23a and 23b convey the same message that someone threw the ball towards the mouth of the cave.

23a *ba qiu xiang dong-kou yi-reng*
 BA ball towards cave mouth once throw
 ‘[Someone] threw the ball towards the mouth of the cave.’

23b *ba qiu reng xiang dong-kou*
 BA ball throw towards cave mouth
 ‘[Someone] threw the ball towards the mouth of the cave.’

Both the examples contain the same phrase *xiang dong-kou* (towards the mouth of the cave)

denoting some direction. Yet, the same conceptual content is construed differently. In 23a, the direction is understood as the intended aim of the throwing action, while in 23b, the direction is understood as the goal of the motion of the thrown ball.

Besides the caused-motion BA-constructions as discussed above, the preverbal led by the word *gei* (give) is licensed in the caused-transfer BA-constructions. Example 24, for instance, contains the preverbal *gei shu-shu* (give uncle), understood as an intended receiver. It conveys the message that you send the gift to the uncle.

- 24 *ba li-wu gei shu-shu song qu*
 BA gift give uncle send go
 ‘[You] send the gift to the uncle.’

However, no preverbal has been found in the resultative BA-construction. One of the possible reasons is that an intended result is intuitively less possible.

8.6.3 Postverbals

The postverbals linked to the result Z occur immediately after the main verbs. They are observed in all the three basic BA-constructions. As it was discussed in Section 8.6.1, postverbals have higher token-frequency count as well as type-frequency count.

Postverbals themselves have many types. A very common type manifests itself a combination of a post-word plus the following NP. In such postverbal phrase, the post-word preceding the NP can be a verb (also called postverb), an adjective or even a preposition. Their sub-types will be further discussed in Sections 8.6.4. Some postverbals can also be a NP phrase or a *DE*-construction without leading post-word. Their sub-types will be further discussed in Section 8.6.5.

8.6.4 Types of postverbs

We have discussed that the caused-change designated by the Z-XP can be grouped into three classes. Each helps to specify the type of the caused-change via identifying the particular type of the causative result. The postverbs (also the preposition) are found to specifically designate the goal, the result or the receiver accordingly. These three types of postverbs help identify the caused-motion BA-construction, the resultative BA-construction and the caused-transfer

BA-construction respectively.

(1) The Z-XP as the goal. The goal can link with the prepositional phrases led by the preposition *zai* (in/at/on) or with the postverbal phrases led by the direction postverbs. The direction verbs include *jin* (enter), *ru* (into), *chu* (exit), *xiang* (towards), *wang* (towards), *hui* (back), *huan* (back), *shang* (up), *xia* (down) and *dao* (reach). In most cases, the direction verbs are followed by an NP. In other words, they are transitive. These postverbs designate the direction or final location of motion. Both the prepositional phrase and the direction postverb phrase are used to denote goal. Example 25, for instance, conveys the message that I threw the mop on the table. Example 26 conveys the message that someone locked the material in the suitcase. Both the prepositional phrase *zai zhuo-zhi shang* (on the table) in 25 and the direction verb phrase *jin xiang-zhi li* (enter the suitcase) in 26 suggest the goal.

25 *wo ba ma-bu reng zai zhuo shang*

I BA mop throw on table up

‘I threw the mop on the table.’

26 *ba liao-zi suo jin xiang-zhi li*

BA cloth for clothes lock enter box inside

‘[Someone] locked the cloth for clothes into the box.’

It is very important to contend that both the verbs *zou* (walk) and *pao* (run) have both the motion meaning and manner-of-action meaning. However, if they function as postverbs, their manner-of-action meaning disappears. Both Examples 27 and 28 contain the postverbs *zou* (away) and *pao* (away) respectively. Example 27 conveys the message that someone piloted the ship away; Example 28 conveys the message that *Yi-jiao* scared away the fish.

27 *ba chuan kai zou le*

BA ship pilot walk PAR

‘[Someone] piloted the ship away.’

- 28 *Yi-jiao ba yue xia pao le*
Yi-jiao BA fish scare run PAR
 ‘*Yi-jiao* scared away the fish.’

It is very obvious that the ship cannot walk and nor can the fish run. It is indeed that both the direction postverbs designate in their respective BA-sentences no manner-of-action meaning. In other words, they are no long action verbs. The direction verbs such as *zou* (walk) and *pao* (run) are semantically more specific in the main verb slot than in the postverb slot. Since the postverb is syntactically less important and semantic less protruding than the main verb, the different degrees of syntactic positions correspond with the different degrees of semantic specificity.

(2) The Z-XP as Result. The result can be expressed by a postverb designating the resultative state of the entity which is acted upon and affected. Example 29, for instance, conveys the message that someone immediately exploded and destroyed the ship.

- 29 *li-ke ba chuan zha hui* (CNC)
 Immediately BA ship explode destroy
 ‘[Someone] immediately exploded and destroyed the ship.’

In 29, the postverb *hui* (destroyed) designates the causative result of *zha* (explode). The similar causative result is also designated by the postverb *bai* (defeated) in 30, which conveys the message that *Liu Bang* defeated *Xiang Yu* instead.

- 30 *liu Bang que ba Xiang Yu da bai le* (CNC)
Liu Bang but BA *Xiang Yu* fight defeated PAR
 ‘*Liu Bang* defeated *Xiang Yu* instead.’

I have found that some verbs, such as *cheng* (become), *wei* (become), and *zuo* (as), can also function as postverbs. Different from most resultative postverbs, they are transitive. By transitive postverbs, it is meant that they are immediately followed by a NP. Example 31, for instance, contains the postverb *cheng* (become), which is followed by the NP *hui* (ash). This BA-sentence

conveys the message that she burned the documents to ashes.

31 *ta ba zi-liao shao cheng hui* (CNC)

She BA documents burn become ash

‘She burnt the documents to ashes.’

This transitive postverbal phrase designates the resultative state of the change and the change is denoted by the main verb *shao* (burn). In this sense, the postverb *cheng* (becoming) is qualified to be a ‘change-to-result’ postverb. The postverbs *zuo* also designate a similar change-to-result meaning. Example 32a, for instance, denotes that someone took the income as the price of his work.

32a *ba gong-zi kan zuo lao-dong-de jia-ge* (CNC)

BA salary see as working price

‘[Someone] saw the salary as the price of his work.’

Although all the transitive postverbs *cheng* (become), *wei* (as) and *zuo* (as) designate their respective result of the caused-change, they have different usage. The change-to-result meaning denoted by *zuo*₁ (as) and *zuo*₂ (as) can only be understood as the type of change in one’s view or mind. In the viewing event expressed by 32a, for instance, the income (*gong-zi*) became the value of the work (*lao-dong de jia-ge*) in the viewer’s mind. The forming of the idea in viewer’s mind can be treated as the result of the change. Example 32b also contains the change-to-result postverb *zuo*₁ (as). The BA-sentence 32b is unacceptable because the postverb *zuo* (as) cannot be used to refer to some physical change.

32b **ta ba zi-liao shao zuo hui*

She BA documents burn as ash

(3) The Z-XP as Receiver. Interestingly, Chinese not has only the postverbs denoting the change of location and the change of state but also has the postverbs denoting the change of possession. Some postverbs together with their following NPs are used to refer to the receiver. I have observed, at

least, four such postverbs in my data. They are *gei* (give), *huan* (return), *yu₁* (to), *yu₂* (to)⁶ [Chinese has two *yu*-s. They are different characters with the same pronunciation and similar meaning.]. I call these postverbs as transfer-direction postverbs. Example 33 with transfer-direction postverb *gei* (give), for instance, conveys the message that someone handed the briefcase to him. Example 34 with the postverb *huan* (return) conveys the message that someone sent the loan back to Aunt *Zai-sheng*.

33 *ba yi-ge gong-wen-bao jiao gei le ta* (CNC)
 BA a brief-case hand give ASP he
 ‘[Someone] handed to him a brief-case.’

34 *ba dai-kuan song huan Zai-sheng Sao*
 BA loan send return *Zai-sheng* Aunt
 ‘[Someone] sent the loan back to Aunt *Zai-sheng*.’

Both the postverb *gei* (give) and the postverb *huan* (return) designate the transfer-directions towards the respective receiver.

As it has been previously discussed, the postverbs can be classified not only according to the type of caused-change that they specify, but also in terms of their transitivity. I noticed that both direction postverbs and resultative postverbs fall into either the transitive category or the intransitive category.

Direction postverbs are mostly transitive locative postverbs. The intransitive direction postverbs in my data include merely *lai* (come), *pao* (away quickly), *zou* (away), *qi* (up) and *qu* (go), while the transitive ones include *dao* (reach), *zhi* (arrive), *huan* (return), *jin* (enter), *chu* (exit), *ru* (enter), *xiang* (towards), and *wang* (towards). The postverbs *chu* (exit), *guo* (pass), *hui* (return), *shang* (up) and *xia* (down) can be either intransitive or transitive. Both 35 and 36, for example, contain the postverb *chu* (exit), which can occur either in the BA-construction with the overt final location (see 35) or in that with the final location unspecified (see 36). Example 35 conveys the message that someone drove the rich landlord out of the large house. 36 conveys the message that someone released the arrested workers.

⁶ Chinese has two *yu*’s. They are different characters with the same pronunciation and similar meaning.

35 *ba da-di-zhu nian chu da-yuan* (CNC)

BA landlord drive exit house

‘[Someone] drove the landlord out of the house.’

36 *ba bu-qu-de gong-you fang chu* (CNC)

BA arrested workers release exit

‘[Someone] released the arrested workers.’

The postverb *chu* (exit) in Example 35 is analysed as a transitive postverb, while that in 36 as an intransitive one. The postverbal containing a transitive postverb and a noun phrase (NP), is called transitive postverbal; while the postverbal containing only an intransitive one is called intransitive postverbal.

Resultative post-words include resultative postverbs and post-adjectives. Very often it is quite a controversial issue in Chinese to distinguish the two types. Resultative post-adjectives are usually intransitive. The adjective *da* (big) in 37, for instance, is such a post-adjective. Example 37 conveys the message that someone blew up the balloon.

37 *ba qi-qiu chui da* (CNC)

BA balloon blow big

‘[Someone] blew up the balloon.’

However, a resultative post-word can also be transitive. If so, the NP that follows the resultative post-word must serve semantically as part of the BA-marked trajector (see 38). Example 38, for instance, conveys the message that someone or something dazzled my eyes.

38 *ba wo zhao hua le yan*

BA I shine dazzled ASP eyes

‘[Someone/something] dazzled my eyes.’

In this exemplified BA-sentence, the NP *yan* (eye) and the BA-marked *wo* (I) holds a part-whole relation. In other words, the eyes are no other than my eyes.

I previously argued that *cheng* (become), *wei* (as), *zuo*₁ (as) and *zuo*₂ (as) all function as resultative postverbs, and all of them can be transitively used. 39a, for example, conveys the message that someone took the hogger as a training site.

39a *ba yang-zhu-chang dang zuo xun-lian-chang*
 BA hogger take as training site
 ‘[Someone] took the hogger as the training site.’

The transitive postverb *zuo* (as) has to carry a NP, otherwise the BA-construction is unacceptable (see 39b).

39b **ba yang-zhu-chang dang zuo*
 BA hogger take as

8.6.5 Postverbals without postverb

The Z in explicit BA-constructions, as I have discussed, is linked with various postverbals. Up to this point of discussion, a postverbal is usually said to consist of a post-word and a noun phrase. The post-word can be a verb, an adjective or a preposition. However, I have also observed that a postverbal specifying the Z can also be phrases or minor-clauses without being led by any post-word. In my CNC data, two types of such postverbals are found. They are NP postverbals and minor-clause postverbals.

The NP postverbal is the NP positioned immediately after the predicate verb in an explicit BA-construction. In many cases, a BA-construction with or without postverb, denote the same meaning. In other words, their syntactic difference does not have a corresponding semantic difference. Such form-meaning pairings can be illustrated in the comparison between 40a and 40b. Both 40a and 40b convey the message that someone put the book into the box.

40a *ba shu fang jin xiang-zi li* [postverbal=postverb+NP]
 BA book put enter box inside
 ‘[Someone] put the books into the box.’

40b *ba shu fang xiang-zi li* [postverbal=NP]
 BA book put box inside
 ‘[Someone] put the books in the box.’

The only difference is that 40a contains the postverb *jin* (enter), while 40b does not. In other words, 40a contains a postverbal led by a postverb, while 40b contains an NP postverbal. Although the postverb *jin* (enter) does not appear in 40b, the final location is specified by the NP *xiang-zi li* (in box). With or without the postverb *jin* (enter), the final location of the caused-motion is understood in the same way. To be more specific, the meaning of moving into the box is understood whether the moving trace expressed by *jin* (enter) is gapped or not.

The NP postverbals are found in all the three basic types of BA-constructions – i.e. the caused-motion BA-constructions, the resultative BA-constructions and the caused-transfer BA-constructions. In other words, the NP postverbals are licensed in all the three basic types of BA-constructions. Both Examples 41a and 41b fall into the type of caused-motion BA-construction. 41a denotes that someone spread the caviar over the bread. 41b denotes that someone loaded the hay onto the boat.

41a *ba yu-zi-jiang tu mian-bao shang*
 BA fish roe sauce spread bread up
 ‘[Someone] spread the bread with the fish roe sauce.’

41b *min-tian ba cao zhuang chuan*
 Tomorrow BA straw load ship
 ‘Load the straw onto the ship tomorrow.’

Both the NP postverbal *mian-bao shang* (on the bread) in 41a and the NP postverbal *chuan* (boat) in 41b are not led by any postverb.

The NP postverbals are also found in resultative BA-constructions. Both Examples 42a and 42b, for instance, convey the message that someone changed something into something else. 42a denotes that I wrote my experience into a composition. In the process of writing, my experience is metaphorical to be changed into a composition. 42b denotes that someone called him ‘Tiger Wei’.

In someone's speech act, he became 'Tiger Wei'.

42a *wo ba zhe-ci ti-hui xie le yi-pian-zuo-wen*
I BA this experience write ASP a composition
'I wrote this experience into a composition.'

42b *ba ta jiao 'wei lao-hui'*
BA he call wei tiger
'[Someone] called him 'Tiger Wei.'

The NP postverbals can also occur in caused-transfer BA-constructions. Example 43, for instance, conveys the message that they persisted in sending me an ear.

43 *ta-men ying-yao ba yi-zhi er-duo song wo*
they persist BA an ear give me
'They persisted in sending me an ear.'

The *wo* (me) in 43 designates the new receiver, although it is not preceded by any post-word.

In all, the NP postverbals are found to occur in all the three types of basic BA-constructions. Although the concepts of the post-words are gapped, their BA-sentences are accessible.

The postverbal can also be instantiated as a minor-clause or a phrase led by the connecting word *DE*. Such a minor-clause or a phrase denotes that the trajector-object is affected and caused to change to the designated extent. The connecting word *DE* helps to connect the following minor clause or phrase to the preceding part of the sentence. Zhao (1968: 466) contends that the connecting word *DE* functions as a conjunction. Example 44, for instance, conveys the message that this eagle scratched the car thief to the extent that he was covered with blood.

44 *ying ba tou-che-zei zhua de hui-shen shi xie*

(CNC)

Eagle BA thief who stole the car scratch DE⁷ whole body is blood

‘The eagle scratched the car thief and he was covered with blood all over.’

The minor-clause *hui-shen shi xue* (the whole body is covered with blood) in 44 is connected to the preceding part with the word *DE*. Such minor-clause expresses the extent to which the trajector-object is affected as a result. In this sense, that his body was covered with blood can be analysed as a sub-type of the causative result.

The *DE* can lead either a minor-clause (see 45a) or an adjective phrase (see 45b). Both the exemplified BA-sentences belong to the resultative BA-construction and convey the message that someone washed the jacket to the extent that the jacket was involved in a change.

45a *ba yi-fu xi de wu-fa zai chuan le*

BA clothes wash DE no way again wear PAR

‘[Someone] washed the clothes that it could not be worn anymore.’

45b *ba yi-fu xi de gan-gan-jing-jing*

BA clothes wash DE clean

‘[Someone] washed the clothes, which made the clothes very clean.’

However, their change is specified differently. 45a denotes that the jacket was no longer wearable. 45b denotes that the jacket was clean.

8.6.6 Frequency counts

Up to this point of discussion, I can build up a more elaborated network to depict possible variants of explicit BA-constructions. The Z-XP of explicit BA-construction can be either a preverbal or a postverbal. The postverbal is further divided into at least four types – i.e. (1) transitive postverb plus an NP or prepositional phrase, (2) intransitive postverb, (3) *DE*-construction (including minor-clause and phrase), (4) NP. All the four types can be illustrated

⁷ DE designates the conjunction leading a minor clause or a phrase.

in Structure 46.

- 46 (1) $V_{\text{main}} + [\text{Prep/DV/RV/TDV}] + \text{NP}$
- (2) $V_{\text{main}} + [\text{DV/RV}]$
- (3) $V_{\text{main}} + \text{DE-construction}$
- (4) $V_{\text{main}} + \text{NP}$

The first two postverbals contain a postverb (a direction postverb, a resultative postverb or a transfer-direction postverb) or a preposition; while the latter two contain no postverb nor preposition. In this sense, the first two are more specific than the latter two. Furthermore, the transitive postverb phrase (see 46(1)) is more specific than the intransitive postverb (see 46(2)) in the sense that the transitive postverb phrase contains an extra NP designating more specific final location or state. The similar specificity difference is also found between (3) and (4). Also, the Structure 46 reveals the order of the specificity of the four types of postverbals.

These four types can be interrelated to make a more detailed explicit BA-construction network illustrated in Figure 8.8.

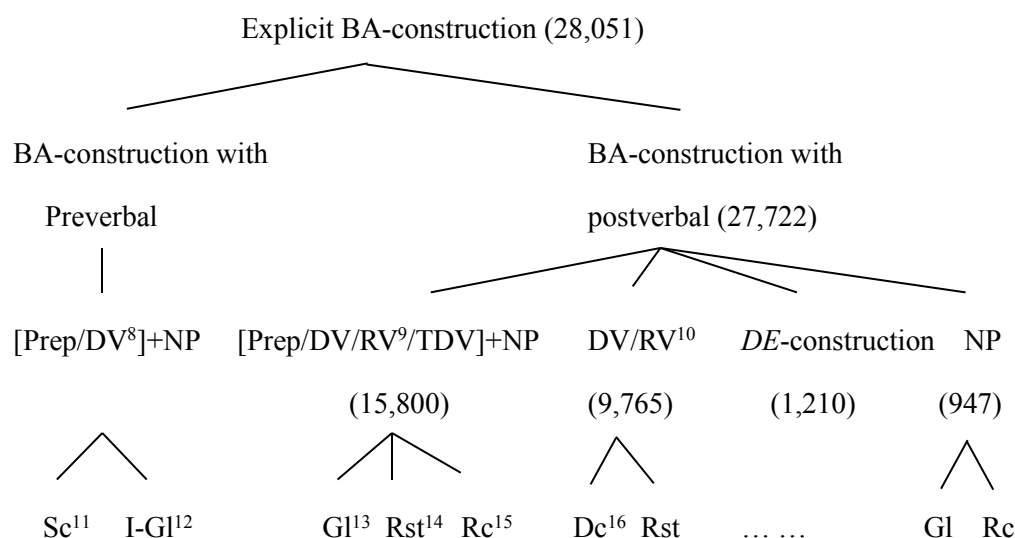


Figure 8.8 Network of explicit BA-constructions

As it was discussed previously, the explicit BA-constructions containing postverbals have bigger token frequency count than those containing preverbals. This statistics serves to support the view that the BA-constructions containing postverbals are more typical than the BA-constructions containing preverbals. In other words, it is more typical for BA-constructions to overtly express the meaning that the trajector-object is involved in a change with its result or consequence specified.

I have observed in my statistical analysis of the CNC data that most resultative postverbs/adjectives are intransitive; while most direction postverbs and all the transfer-direction postverbs are transitive. Although the resultative postverbs have a bigger type frequency count than that of the direction postverbs, they have smaller token frequency count (3,580) than that of the direction ones (5,954). The transfer-direction postverbs have the smallest type frequency count as well as the smallest token frequency count (1,707) (see Figure 8.8).

The BA-constructions with the four types of the postverbals illustrated in Structure 46 have different token frequency counts (see Figure 8.8 above). It is obvious that the specificity ordering of the postverbal types correspond with the token frequency ordering as illustrated in Structure 47.

⁸ DV refers to the direction postverb.

⁹ RV refers to the resultative postverb.

¹⁰ TDV refers to the transfer-direction postverb.

¹¹ Sc refers to source.

¹² I-Gl refers to intended-goal.

¹³ Gl refers to goal.

¹⁴ Rst refers to result.

¹⁵ Rc refers to receiver.

¹⁶ Dc refers to DE-construction.

- 47 (1) $V_{\text{main}} + [\text{Prep/DV/RV}] + \text{NP}$ (15,800)
 (2) $V_{\text{main}} + [\text{DV/RV}]$ (9,765)
 (3) $V_{\text{main}} + \text{DE-minor-construction}$ (1,210)
 (4) $V_{\text{main}} + \text{NP}$ (947)

There should be, thus, a principle that works with variants of BA-construction family to predict the possible ordering rank of their occurring frequency. I will argue for such a principle in the following Section 8.7.

8.7 Option principle

Chinese BA-constructions generally convey the message that the cause X makes the trajector-object Y to be involved in a possible change, which possibly leads to a result Z. Chinese BA-constructions, particularly their result Z-XP, vary greatly. Their predicate verbs, as well as, the result Zs can be optional. The postverbals specifying the result Z also vary greatly. The post-word in the postverbals are also optional. In other words, some postverbals contain a post-word, while others do not. If the post-word appears, it can be transitive or intransitive. In other words, the post-word can have an optional NP to follow.

In all, BA-constructions, I contend, have four types of options. They include the predicate verb option, the result Z option, the post-word option and transitivity option (or the NP of the transitive post-word option). In other words, the predicate verb, the Z-XP component, the post-word and the NP of the transitive post-word are all optional. The BA-constructions containing the optional element are more specific than the ones without it. I have also found that **the BA-construction with the optional element is more frequent and more typical than the one without it**. I call such principle as the **Option Principle**.

The BA-construction family can be organised into a network with various level of specificity. Based on the previous study, a network of specificity can be established with six levels (see Figure 8.9).

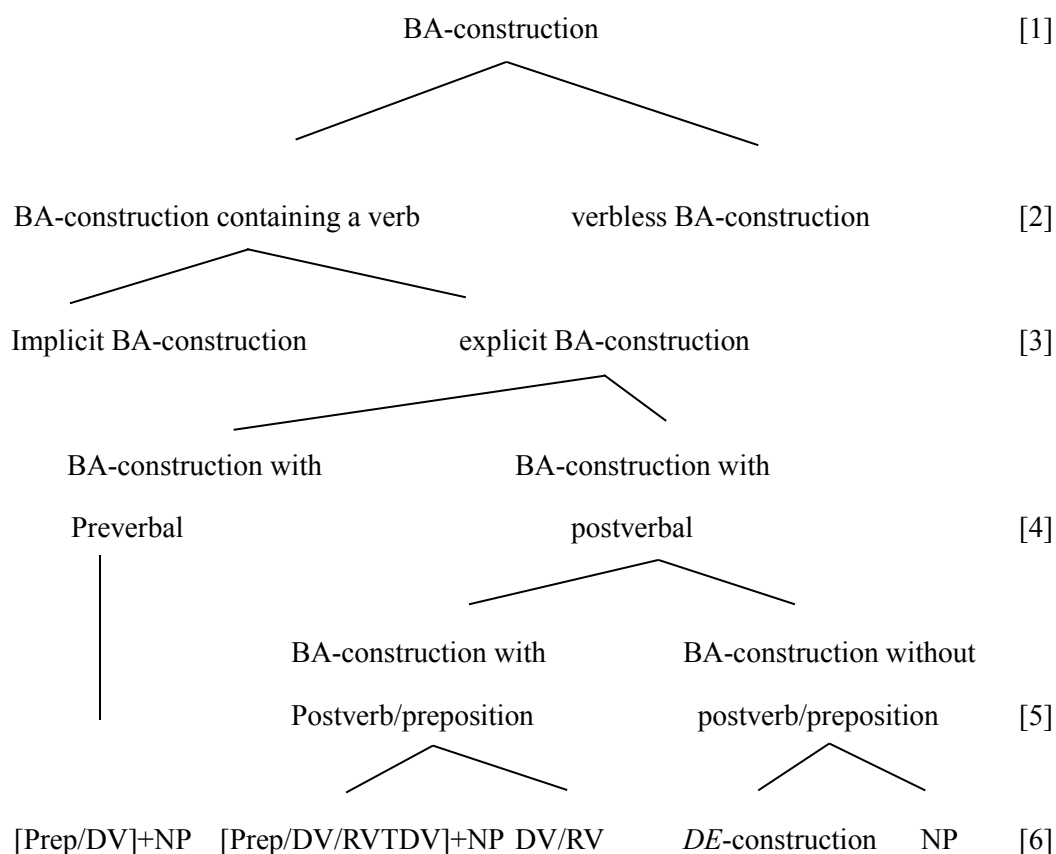


Figure 8.9 Network of specificity

The Option Principle observes two maxims – i.e. the specificity maxim and the quantity maxim. By specificity maxim, it is meant that various optional components or simply various options in an argument structure construction can be positioned at different levels of specificity. The network of BA-construction family as illustrated in Figure 8.9 helps to set up the hierarchy of the options – i.e. verb option > Z option > post-word option > transitivity option. These four options are positioned at Levels 2, 3, 5 and 6 respectively. This ordering reads that only the designated optional element is chosen, the option of the next order will be considered. For instance, if and only if a BA-sentence contains an overt main verb, can the Z option be considered.

The quantity maxim can be applied to each of these four options. It is meant that the BA-construction containing the optional element is more frequent than the one without it. The BA-sentence containing an overt main verb has a bigger token frequency count than the verbless one.

Besides the Option Principle which predicts the ranks of token frequency, it is also observable that the token frequency of the caused-motion BA-construction is highest of all the three, while that

of the caused-transfer BA-construction is lowest. That means that the caused-motion BA-construction is a typical type of BA-construction.

The prediction made by the Optional Principle I proposed in this thesis is well supported by the statistical analysis of the BA-construction variants. Based on the network illustrated in Figure 8.9, each type of the various BA-constructions in CNC are studied and their token frequencies are manually calculated. Their token frequency counts yielded are listed in Figure 8.10.

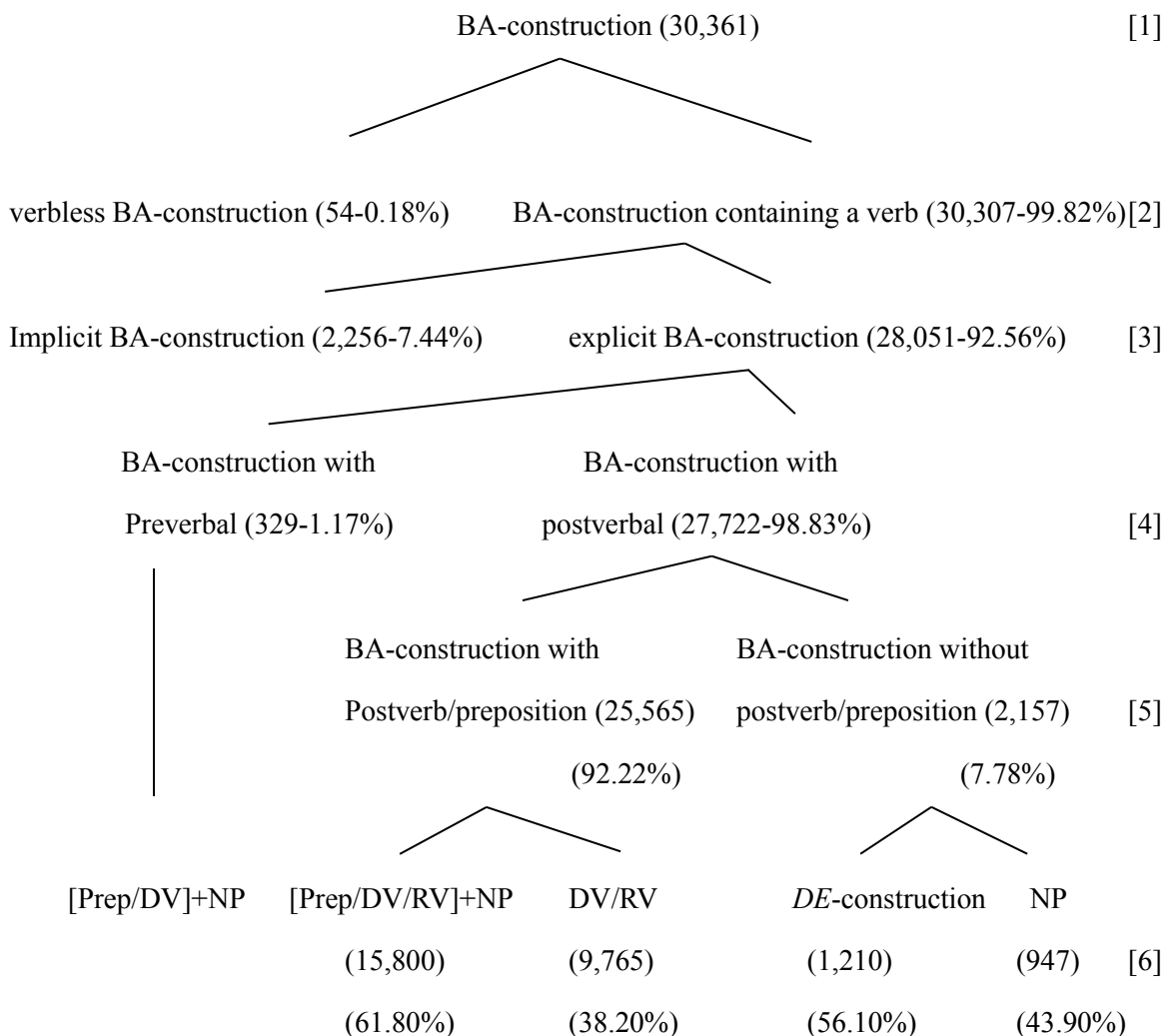


Figure 8.10 Frequency counts of various types of BA-constructions

As Figure 8.10 indicates, it is true that the Optional Principle has offered an adequate generalisation that the appearance of the optional element makes the BA-construction under question more specific. The more specific (constrained merely in the sense we have discussed) the BA-construction is, the more token-frequent the BA-construction is. It is true that the

BA-constructions with an overt predicate-verb are more frequent than the verbless BA-constructions. It is quite obvious that the explicit BA-constructions are more specific and frequent than the implicit ones. The same correspondence between specificity and frequency count can be observed downward to the bottom level.

It is worth pointing out that the most typical BA-constructions are the explicit BA-constructions containing the transitive post-words followed by an NP. This type of BA-construction designates that X causes Y to be involved in a change which is specified by a causative result. That is, a typical BA-construction is the one with all the optional elements are chosen. Furthermore, the caused-motion type of such explicit BA-constructions, as the statistical data has indicated, is the most typical BA-construction. In other words, the typical BA-construction is the caused-motion BA-construction containing the overt main verb and the transitive postverbal denoting the result of the location change.

8.8 Summary

The description and discussion conducted in this chapter as well as in the various chapters have clearly evidenced that it is impossible to treat the Chinese BA-constructions as a uniformed construction. They have very rich variants with different form-meaning pairings. These variants also have different token frequency counts. In other words, some types of BA-constructions are more frequently used than others and are more typical.

Another reason that Chinese BA-constructions vary greatly is that the construction has only one obligatory component – i.e. BA-marked trajector-object. In my analysis, at least four types of options have been found to be significant to BA-construction variations. They are the optional X-subject, the optional predicate verb, the optional Z-XP and the optional postverb in Z-XP.

It has also been discovered that what governs the frequency rank of the most BA-construction variants is the Option Principle that I have proposed. The Option Principle is set up on the basis of the taxonomical network of BA-constructions with various levels of specificity. The four options mentioned above are positioned at various levels. The Option Principle offers a correct prediction that the BA-construction containing the optional element is more frequently used than the one without it.

Besides, the Option Principle, I have also found that the caused-motion BA-construction is the most frequent type of all the three basic BA-constructions. In other words, the caused-motion

BA-construction is more frequently used than the resultative and caused-transfer BA-constructions. Together with what the Option Principle predicts, the most frequently used member of the BA-construction family, as the statistical data indicates, is the caused-motion BA-construction with an overt postverbal phrase composed of a transitive post-word. The Option Principle together with the taxonomical network has offered a helpful assistance in finding out the typical member of Chinese BA-constructions.

Variants of BA-constructions not only have a different token frequency but also carry different verb-construction relations. In other words, different BA-construction variants attract different groups of verbs. The following Chapter Nine will discuss such verb-construction relations in various members of BA-construction family.

9 Collostructional analysis of verb-construction semantic relations

9.1 Introduction

The Chinese BA-construction, I continue to strongly argue in this thesis, is composed of a family of variants related yet distinct. Furthermore, these rich variants, as I argued in Chapter Eight, are related to various levels of specification. These two statements were supported in Chapter Eight by their respective substantial raw-frequency counts.

To further support the statements, I argue in this Chapter that BA-constructions at various levels have different verb-construction relations. That is, verbs have various distributions in BA-constructions positioned at various levels. To be more specific, BA-constructions at various levels of specificity are inclined to attract different types of verbs. In this chapter, I provide a strong support to my claim that BA-constructions are organised as a family with various levels by using the collostructional analysis proposed by Grice and his colleagues (Gries 2005a; Stefanowitsch and Gries 2003e, 2005j; Gries and Stefanowitsch 2004f, 2004g).

The levels under the investigation in this Chapter include the Z-XP option level, where the implicit and the explicit BA-constructions are divided (see Figure 9.1). Down below the explicit BA-construction level, the tree basic explicit BA-constructions are positioned (see Figure 9.1). They also attract different verbs.

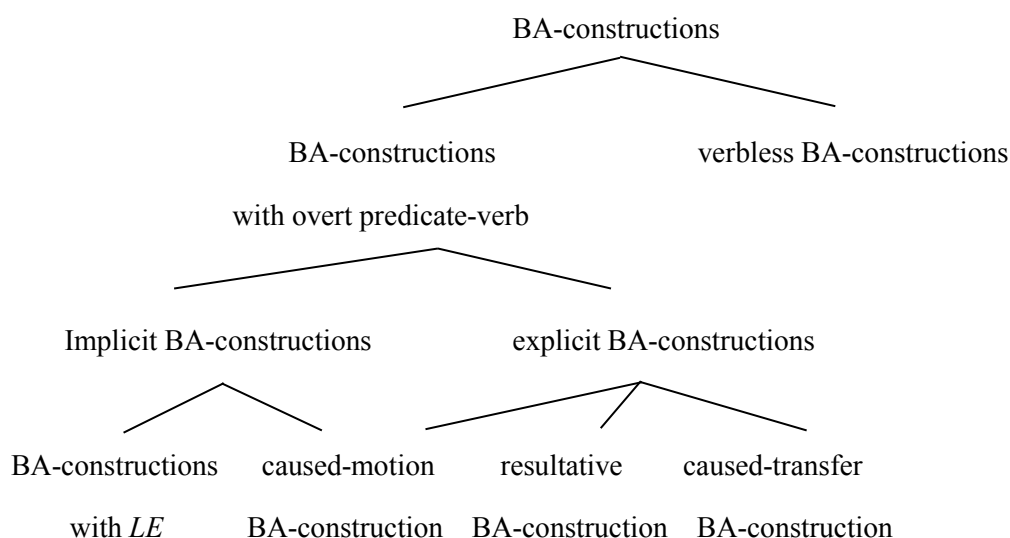


Figure 9.1 Family of BA-constructions (partial)

The three basic explicit BA-constructions can be further specified in terms of their postverbs that

they contain. Various postverbs also attract different verbs.

Chapters Six and Seven argued that force-dynamic patterns became applicable to Chinese BA-constructions if they were incorporated into the expanded CEF. In this expanded CEF, every frame element is possible to be chosen as the stronger force. On the other hand, every element is possible to be chosen as the weaker force and be chosen as trajector-object. Yet, it is expected that such trajector-object potential must be well conditioned in the sense that some elements may be inclined to be attracted to one of the various BA-constructions construing the same CEF. In this chapter, I provide statistical evidence to support this argument and attempt at the research question 1.6 (see Chapter One). It is expected that not all the verbs can occur in all the BA-construction variants. Not all the verbs can occur even in one BA-construction variant. Which verbs are licensed in which variant(s) of BA-constructions?

In all, to provide the statistical data to support the two statements and to support the possible construing patterns, various verb-construction semantic relations at various levels of the family network are studied. Section 9.2 introduces and discusses the data for the collostructional analysis. Section 9.3 carries out the collostructional analysis for the implicit BA-construction with the completion particle *LE*. Sections 9.4-9.7 analyse the explicit BA-constructions of various sub-types. Finally, I discuss trajector-object variations of BA-constructions in Section 9.8.

9.2 Collostructional analysis

Based on the theory of usage-based grammar, usage statistics reveals various types of verb-construction compatibility (Rohde 2001; Langacker 2003). Gries and his colleagues (Gries 2005a; Stefanowitsch and Gries 2003e, 2005j; Gries and Stefanowitsch 2004f, 2004g) argue that the collostructional strength in their collostructional analysis accurately reveals various degrees of verb-construction semantic compatibility.

The collostructional analysis is used in the study of BA-construction family with reasons. Firstly, the collostructional strength is a more convincing index to reveal various types and degrees of verb-construction semantic compatibility, since the analysis takes both the token frequency of the lexemes and the token frequency of the whole database into consideration. Secondly, Gries and his colleagues argue that in comparison with the ranking of raw frequency, the ranking of the collostructional strength better predicts speakers' productions. Based on his careful analysis, Perek (2015: 88) even claims that "[c]ollostructional strength is a better predictor of speakers'

productions than token frequency, which shows that it more accurately captures the associations between verbs and constructions that are parts of speakers' linguistic knowledge."

The collostructional analysis is successfully applied to various constructions of many other languages, such as English into-causative construction (Stefanowitsch & Gries 2003e, 2005j; Gries & Stefanowitsch 2004f, 2004g), English complement clause constructions (Hilpert 2010), Dutch ditransitive construction and dative constructions (Coleman 2009; Coleman & De Clerck 2009). Similarly, the collostructional analysis is applicable to the Chinese BA-constructions. In my collexeme analysis of the resultative BA-construction, for instance, I notice that the raw frequency count of the collexeme verb, *kan* (see) is 850, while that of the collexeme *bian* (change) is only 373. However, the collostructional strength of the collexeme *bian* (change) is ranked higher than that of *kan* (see). Intuitively, *bian* (change) is obviously more semantically compatible with the resultative BA-construction than *kan* (see). Thus, the collostructional strength is a more reliable statistics than the raw-frequency.

9.2.1 Methods

Gries (2004a, 2004b, 2005a, 2013c) studies the attractedness between the collexemes and constructions through Fisher exact tests with R software. The R version 3.2.3 I use in this collostructional analysis was released on 2015-12-10.¹

The token frequencies required for running the R software are all collected from the CNC (Balanced National Corpus of Modern Chinese), a published modern Chinese online database. CNC (see Chapter Three) has its own search engine and token frequency calculator which offer a great help for the data collection.

There are three sub-types of analysis Gries kindly describes in his scripts and I use them all. They are collexeme analysis, distinctive collexeme analysis, and co-varying analysis. The collexeme analysis is designed to investigate the attraction of a group of verbs to a particular construction and the different degrees of the attraction of these various verbs. In the case of the implicit BA-constructions containing V plus the particle *LE*, for instance, the collexeme analysis is the most appropriate method of the three to find out which verbs occur in the implicit V-LE BA-construction, and their rank of attraction (see Section 9.3). The collexeme analysis is also

¹ The software is available on <https://www.r-project.org/>. Gries also provides the manual script 'Coll.analysis 3.2a' and 'readme.txt for Coll.analysis 3.5.1'. These two files are available on the website <http://www.linguistics.ucsb.edu/faculty/stgries/teaching/groningen/>.

applied to the three basic BA-constructions – i.e. the caused-motion BA-construction, the resultative BA-construction and the caused-transfer BA-construction (see Sections 9.5 - 9.7).

The collexeme analysis requires four scores of frequencies (Stefanowitsch and Gries 2003e:218). To investigate the relations between the verb *reng* (throw) and the implicit V-LE BA-construction in general, for instance, the frequencies required are listed as follows:

- (1) the frequency of the verb *reng* (throw) in the V-LE BA-construction;
- (2) the frequency of the verb *reng* (throw) in all other constructions,
- (3) the frequency of the V-LE BA-construction with verbs other than *reng* (throw), and
- (4) the frequency of all other constructions with verbs other than *reng* (throw)

However, only one of these four frequency counts can be obtained directly from the data. Even so, the other three can be obtained through calculation. The four frequency counts which can be obtained as listed in italicised numbers in Table 19.1 can serve as the base for the calculation.

Table 9.1 Crosstabulation of *reng* (throw) and the V-LE BA-construction (more examples in English can be found in Gries 2003e)

	<i>reng</i> (throw)	\neg <i>reng</i> (throw)	Row totals
V-LE	(1) 7	(3) 365	372
\neg V-LE	(2) 241	(4) 30,751	30,992
Column totals	248	31,116	31,364

First, the CNC corpus provides us with a table of raw-frequency count of each verb and the frequency count of verb *reng* (throw) is found to be 248 This frequency count can be understood as the sum of the frequency count of *reng* in the V-LE BA-construction and that in the non-V-LE BA-construction (see the italicized count of the column total of the verb *reng* (throw) in Table 9.1). Second, I input “ba/p” (BA preposition) to obtain all the possible BA-sentences. Unfortunately, the samples extracted include some noun *BA* and verb *BA*. I, then, manually exclude these samples without a BA-marker (or preposition BA according to CNC’s tagging system) and yielded 31,364

sample BA-sentences (see the sum of the column totals and the row totals in the italicised count in Table 9.1). I also manually picked out and count the V-LE BA-constructions and yielded the frequency count 372 of V-LE BA-constructions (see the italicized count of the row totals of V-LE in Table 9.1). Similarly, I manually count the V-LE BA-constructions containing the main verb *reng* (throw) and yielded the frequency count 7 (see the italicized count of the V-LE BA-construction with the verb *reng* in Table 9.1). With these four counts (see them in the four corners of Table 9.1) I can obtain, through calculation, the other three frequency counts for the collolustrctional analysis.

The co-varying analysis is used for examining the co-occurring strength between two co-occurring collexemes in the same construction. Gries (2012:228) explains how does the co-varying collexeme anlaysis work as follows,

“Extending collostructional analysis to the issue of covarying collexemes essentially involves comparing the collostruction strength of the lexemes in the two slots in relation to each other; we must determine for each word occurring in one of the slots (collexeme1) which words in the other slot (collexeme2) co-occur with it significantly more often than expected. First, this requires us to find all instances of the construction in question and then determine the frequency of each pair of potential collexemes. We extracted all cases of the into-causative from the 1990-2000 volumes of The Guardian; this yielded 6,288 tokens. We then identified the verb lemmas in the cause- and result-predicate slots, yielding 3,908 combinations ”

This present chapter studies particularly the semantic association between verbs and a particular postverb or preposition in a particular explicit BA-construction. Sections 9.5.2, 9.5.3 and 9.5.4, for instance, investigate the relations between various verbs attracted to the caused-motion BA-construction containing the preposition *zai* (in/on/at), the postverb *dao* (reach) and the postverb *jin* (enter) respectively. The similar analysis is also applied to the resultative BA-construction and the caused-transfer BA-construction in Sections 9.6 and 9.7 respectively.

I extracted, for instance, the caused-motion BA-construction with a postverb from the BA-sentence data I obtained from CNC, and yielded 5,382 tokens. In these BA-sentences, various postverbs occur. Then, I select the tokens of some combinations as illustrated in Table 9.2,

Table 9.2 Selected verb-postverb combination token frequencies in the caused-motion

BA-construction

COLLEXEME ₁ -COLLEXEME ₂	N	COLLEXEME ₁ -COLLEXEME ₂	N
<i>chen</i> (submerge)- <i>dao</i> (to)	3	<i>fang</i> (put)- <i>jin</i> (into)	59
<i>chi</i> (eat)- <i>dao</i> (to)	2	<i>fang</i> (put)- <i>dao</i> (to)	124
<i>chi</i> (eat)- <i>jin</i> (into)	3	<i>fang</i> (put)- <i>zai</i> (in/on/at)	747
		...	

All these statics will be the input for the R software to run the co-varying collostructional strength.

The results of this co-varying analysis are presented in section 9.5, 9.6 and 9.7.

The distinctive collexeme analysis is a method to investigate one of the two or more constructions in which an individual verb is inclined to occur. This method is adopted in exploring the relations between verbs and their two or more BA-constructions containing different trajector-objects (see Section 9.8). The collostructional strength yielded in the analysis reveals which BA-construction the verb is inclined to be most highly attracted to. Following Gries (2004), the analysis is conducted:

“In order to calculate the distinctiveness of a given collexeme, we need four frequencies: the lemma frequency of the collexeme in construction A, the lemma frequency of the collexeme in construction B, and the frequencies of construction A and construction B with words other than the collexeme in question. These can then be entered in a 2-by-2 table and submitted to the Fisher exact test (or any other distributional statistic).” (Gries 2004:102)

Some BA-constructions with similar conceptual content can have two types of object-trajector. At least, the object-trajector can be either the acted upon entity or the location where the action takes place. Other BA-constructions can even have more than two types. In order to investigate the relationship between the main verb and these two types of object-trajectors, the distinctive collexeme analysis is used. The verb *guo* (wrap) is observed in these two constructions with distinct object-trajectors. For convenience, I name the construction with the location object-trajector ll-construction and the acted upon entity object-trajector oo-construction. The

2-by-2 table is presented as follows (Table 9.3) to run the distinctive collexeme analysis:

Table 9.3 The distribution of *guo* (wrap) in the ll-construction and the oo-construction in CNC

	<i>guo</i> (put)	Other verbs	Row totals
ll-construction	15	134	149
oo-construction	3	449	542
Column totals	18	573	601

The results of the collocational strength of the verb *guo* (put) towards the ll-construction and oo-construction can be found in section 9.8

The results of all the three types of analysis display the relationships between the investigated lexeme and the construction with their collocational strength. The higher the collocational strength the verb has, the more attracted it is to the construction. If the collocational strength of the verbs is negative, it is said to be repelled from the construction.

The collocational analyses of various types are conducted to explore the BA-constructions at various levels illustrated in Figure 9.1. I analyse the implicit V-LE BA-construction in Section 9.3 and the caused-motion BA-construction, the resultative BA-construction and the caused-transfer BA-construction at two levels in Sections 9.4-9.7. I explore the trajector-object variants via distinctive collexeme analysis in Section 9.8.

9.3 Implicit V-LE BA-constructions

BA-constructions, as discussed in Chapter Eight, are divided into implicit type and explicit type. The major difference between the two is that the explicit BA-constructions contain the explicitly expressed result of caused-change labelled as Z-XP; while the implicit BA-constructions contain no explicit resultative Z-XP.

The implicit type of BA-constructions can be sub-divided into several sub-types. In these sub-types, the main verb is not followed by any element(s) explicitly expressing the result of caused-change. In other words, the implicit BA-constructions contain no explicit Z-XP. Instead, it is followed by the sentence particle LE, a copying verb or a verb-quantifier. I call the first one as V-LE BA-construction. This section focuses its investigation on the V-LE BA-construction.

The motivation to investigate the V-LE BA-construction is that the V-LE BA-construction is the simplest form of the implicit BA-constructions and serves as the best example to illustrate the semantic compatibility between verb and construction. Firstly, in comparison to the quantifier, the sentence particle LE has a less semantic load. The sentence particle LE simply designates the completion of the designated event. That is, the V-LE BA-construction is a construction that has less distraction from other elements except for the main verb and the construction denoting the completed event. Secondly, compared with the explicit BA-construction, the implicit BA-construction is free from the distraction of the result Z-XP component.

Typical Chinese BA-constructions, as it was argued in Chapter Eight, are inclined to convey the message that the entity linked to the grammatical object is affected (see 1a). The result Z-XP of the explicit BA-construction as illustrated in Example 1a is expressed by the postverbal phrase *jin huo-dui li* (enter the fire). The implicit BA-construction illustrated in 1b has no overt Z-XP. Example 1a conveys the message that someone threw the worn cotton-padded jacket into the fire. Example 1b conveys the message that someone threw away his gun.

- 1a *ba ...po mian-yi reng jin huo-dui li*
 BA worn cotton-padded jacket throw enter burning fire inside
 ‘[Someone] threw the worn cotton-padded jacket into the fire.’
 (explicit BA-construction)

- 1b *ba zi-ji-de qiang reng le*
 BA himself gun throw PAR
 ‘[Someone]threw away his gun.’
 (implicit BA-construction)

Both 1a and 1b contain the verb *reng* (throw) and have the affectedness reading that someone threw something away. In the explicit BA-construction (see 1a), the affectedness meaning is expressed directly through the main verb *reng* (throw) and the postverbal *jin huo-dui li* (enter the fire). In the implicit V-LE construction (see 1b), the verb is only followed by the completion sentence particle LE, designating that the throwing event is completed. The completion of the event merely implies that the gun is not with him anymore. That is, in the implicit BA-construction (see 1b), the action

denoted by the verb and the completion of the action must be ‘strong’ enough to give the ‘affecting’ implication. In other words, verbs are required to have certain ‘strong affecting force’ to be licensed in this implicit V-LE BA-construction. Otherwise, the V-LE BA-construction is unacceptable. Although both Examples 2a and 2b contain the same verb *zuo* (sit), for instance, only 2a in which the main verb occurs with the Z-XP is accepted. The implicit BA-construction without Z-XP as illustrated in 2b is not acceptable since the verb *zuo* (sit) does not have the affecting force strong enough to provide the implication. The explicit BA-construction illustrated in 2a conveys the message that the big man sat on the chair and the chair collapsed as a result.

2a *pang-zi ba yi-zi zuo ta le* (explicit BA-construction)

Big-man BA chair sit collapse PAR

‘The big man sat on the chair and the chair collapsed as a result’

2b. **pang-zi ba yi-zi zuo le* (implicit BA-construction)

Big-man BA chair sit PAR

In all, although the implicit BA-constructions contain no Z-XP, the affectedness reading is possibly implied (see 1b). That is because the verb carries the meaning of the force strong enough to affect the entity. In this sense, the verbs licensed into the implicit V-LE BA-construction must be more constrained so that the construction can properly imply that the BA-marked object possibly is affected physically or mentally. Besides, it is logical to assume that the more strictly constrained the verbs are, the fewer verbs are possible to occur in the V-LE BA-construction. In other words, a smaller number of verbs are licensed in the implicit V-LE BA-construction.

By following this line of argument, at least two questions arise. What classes of verbs are attracted to the V-LE BA-construction? Do all the attracted verbs contain this internal affecting force? I attempt to answer these questions with the statistic support obtained in the collexeme analysis.

Through manual labour, I found only miserable forty-one verbs in CNC licensed in the V-LE BA-construction. I submitted the collected data into the R-software to calculate the relation between the verbs and the V-LE construction. All of the verbs are significantly attracted to the V-LE construction. As table 9.1 illustrated, the attracted verbs are ranked according to their

respective collostructional strength (see Table 9.4).

Table 9.4 Collexeme analysis of V-LE BA-construction

	NO words	obs ² ./exp.freq	coll.strength
1	<i>wang</i> (forget)	(49/0.012892)	144.075491
2	<i>diu</i> (lost)	(17/0.007553)	52.444181
3	<i>sha</i> (kill)	(18/0.012588)	52.017825
4	<i>mai</i> (sell)	(17/0.019415)	45.394679
5	<i>chai</i> (disassemble)	(12/0.003261)	39.447855
6	<i>guan</i> (lock up/close)	(12/0.006962)	35.415497
7	<i>fang</i> (release)	(14/0.051992)	30.035478
8	<i>hui</i> (ruin)	(9/0.002467)	29.55102
9	<i>reng</i> (throw)	(7/0.00419)	20.6202
10	<i>ban</i> (handle)	(9/0.024974)	20.411365
11	<i>che</i> (withdraw)	(6/0.002433)	18.753368
12	<i>shao</i> (burn)	(7/0.01198)	17.405096
13	<i>mai</i> (bury)	(6/0.004664)	17.036732
14	<i>he</i> (drink)	(7/0.020006)	15.843501
15	<i>bi</i> (kill)	(4/0.000321)	15.565897
16	<i>shuo</i> (tell)	(13/0.59219)	13.843121
17	<i>ci</i> (resign)	(4/0.000946)	13.589468
18	<i>tuo</i> (take-off)	(5/0.006472)	13.147574
19	<i>si</i> (tear)	(4/0.001842)	12.409429
20	<i>mie</i> (destroy)	(4/0.005779)	10.407744
21	<i>yan</i> (flood)	(3/0.000946)	9.906489
22	<i>shuan</i> (lock)	(2/0.000152)	7.998833
23	<i>da</i> (hit)	(5/0.073265)	7.888965
24	<i>xi</i> (wash)	(3/0.009378)	6.899451

² Obs.:observed frequency refers to the frequency of the investigated lexeme in the V-LE BA-construction.

25	<i>kai</i> (open)	(4/0.049001)	6.701059
26	<i>gua</i> (hang)	(3/0.013112)	6.463201
27	<i>huan</i> (change)	(3/0.013889)	6.388311
28	<i>jiao</i> (hand-in)	(2/0.001487)	5.972532
29	<i>jiao</i> (mix)	(2/0.001994)	5.716605
30	<i>mian</i> (dismiss)	(2/0.003008)	5.358559
31	<i>ba</i> (pull-up)	(2/0.003244)	5.292683
32	<i>jian</i> (cut)	(2/0.003481)	5.231461
33	<i>shuai</i> (throw)	(2/0.003768)	5.162504
34	<i>zhe</i> (fold)	(2/0.005187)	4.884693
35	<i>hai</i> (hurt)	(2/0.007249)	4.594219
36	<i>chui</i> (blow)	(2/0.010831)	4.246068
37	<i>jiao</i> (hand-in) ³	(2/0.012217)	4.141812
38	<i>mai</i> (buy)	(2/0.032476)	3.297779
39	<i>zhan</i> (occupy)	(2/0.038897)	3.142802
40	<i>jiang</i> (tell)	(2/0.052533)	2.885467
41	<i>xie</i> (write)	(2/0.055912)	2.832234

For the convenience of discussion, these verbs are put into three groups according to their meanings. They are the cause-to-become group, the cause-to-move group and the cause-to-transfer group. The cause-to-become group includes eighteen verbs. They mainly give the implication that the trajector-object is possibly affected in terms of their state and property (see Table 9.5).

³ This *jiao* has the same pronunciation and the same meaning with the 28 *jiao*. But they are different characters.

Table 9.5 Cause-to-become group

3 <i>sha</i> (kill)	5 <i>chai</i> (disassemble)	8 <i>hui</i> (ruin)
12 <i>shao</i> (burn)	15 <i>bi</i> (kill)	16 <i>shuo</i> (tell)
19 <i>si</i> (tear)	20 <i>mie</i> (destroy)	21 <i>yan</i> (flood)
23 <i>da</i> (hit)	24 <i>xi</i> (wash)	27 <i>huan</i> (change)
29 <i>jiao</i> (mix)	32 <i>jian</i> (cut)	34 <i>zhe</i> (fold)
35 <i>hai</i> (hurt)	40 <i>jiang</i> (tell)	41 <i>xie</i> (write)

Except the three verbs *shuo* (tell), *jiang* (tell) and *da* (hit), the other fifteen verbs have the ‘strong affecting force’. The completion of the actions designated by these verbs is sure to lead to the ‘affectedness’ implication.

The verb *da* (hit) may not have the same ‘strong force’ as the other verbs have. However, it is possible to affect an entity by hitting it. The two speech verbs *shuo* (tell) and *jiang* (tell) can be interpreted to have such implication in the sense that something is said or told can be interpreted as the information of that thing is being revealed.

The second group, the cause-to-move group includes fifteen verbs (see Table 9.6).

Table 9.6 Cause-to-move group

6 <i>guan</i> (close)	7 <i>fang</i> (release)	9 <i>reng</i> (throw)
10 <i>ban</i> (handle)	11 <i>che</i> (withdraw)	13 <i>mai</i> (bury)
14 <i>he</i> (drink)	18 <i>tuo</i> (take-off)	22 <i>shuan</i> (clock)
25 <i>kai</i> (open)	26 <i>gua</i> (hang)	31 <i>ba</i> (pull-up)
33 <i>shuai</i> (throw)	36 <i>chui</i> (blow)	39 <i>zhan</i> (occupy)

The verbs falling into this group can be further divided into three sub-groups. The first sub-group includes the verbs denoting the cause-to-move meaning, such as *reng* (throw), *ban* (handle), *che* (withdraw), *mai* (bury), *ba* (pull-up), *he* (drink), *tuo* (take-off), *gua* (hang), *shuai* (throw) and *chui* (blow). The completion of the actions designated by these verbs leads to the implication that the trajector-object acted upon is possibly involved in a change of location. The second sub-group

includes the verbs denoting cause-not-to-move, such as *guan* (close), *shuan* (lock) and *zhan* (occupy). These verbs give the implication that the trajector-object is affected in the sense that it loses the freedom to move. The third group includes the verbs denoting ‘let-the trajector-move’, such as *fang* (release) and *kai* (open). The completion of the action designated by these verbs give the implication that the trajector-object is affected in the sense it gains the freedom to move.

The third group includes eight verbs (see Table 9.7). They all denote the meaning of losing the possession of something, except the verb *mai* (buy).

Table 9.7 Cause-to-transfer group

<i>wang</i> (forget)	<i>diu</i> (lost)	<i>mai</i> (sell)
<i>ci</i> (resign)	<i>jiao</i> (hand-in)	<i>mian</i> (dismiss)
<i>jiao</i> (hand-in)	<i>mai</i> (buy)	

The completion of the *wang* (forget) event implies that the entity that is lost is affected. The entity involved in a buying event is also understood as the possessive change of the goods.

It is worth noticing that the top five verbs ranked in the Table 9.4 are *wang* (forget), *diu* (lost), *sha* (kill), *mai* (sell) and *chai* (disassemble). They all have the ‘negative’ reading in the case that the actions designated by these verbs are completed. As Perek (2015) and Gries (2004a, 2004b, 2005a) suggest, the stronger the collocational strength of a collexeme is, the closer it is to the core meaning of the designated construction. Judging the shared semantic association of all the top five verbs, the V-LE BA-construction is most likely to be associated with the verbs with the ‘negative’ reading. In other words, the typical V-LE BA-construction carries the implication that the BA-marked trajector-object is ‘negatively affected’.

9.4 Explicit BA-constructions

The BA-construction is analysed as a family with various members related at various levels. In the following sections, I further support this thesis with substantial statistics indicating that BA-constructions at different levels attract different class of verbs and that a particular BA-construction and its attracted verbs are semantically compatible.

Chinese explicit BA-constructions are divided into three basic types according to their

different specified Z. The three types are the caused-motion BA-construction, the resultative BA-construction and the caused-transfer BA-construction as illustrated in Figure 9.2.

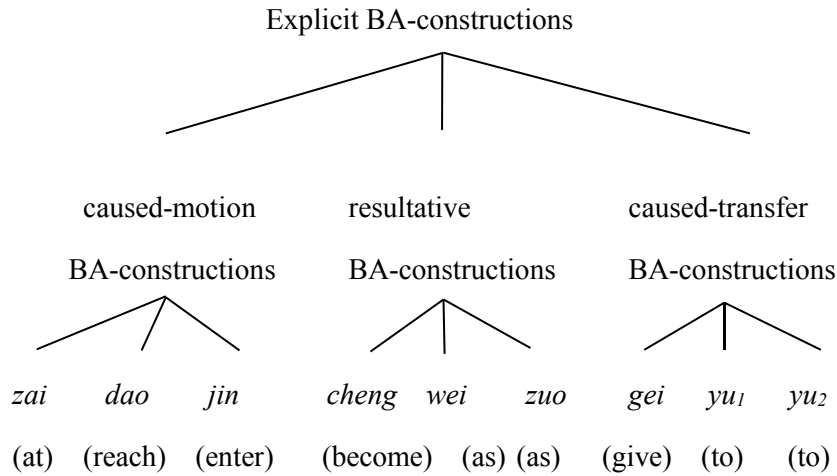


Figure 9.2 Network of explicit BA-constructions (partial)

As it has been proved that the typical Chinese BA-construction is the explicit caused-motion BA-construction containing a transitive postverbal. The transitive postverbal in the typical explicit BA-construction is led by either a postverb or a preposition. Different types of explicit BA-constructions have different postverbs or prepositions. In other words, each basic type of the explicit BA-construction has its own postverbs or prepositions. In this chapter, I will choose three commonly used preposition and postverbs for each of these three types (see the low level of Figure 9.2). They are summarised in Table 9.8.

Table 9.8 Preposition and postverbs

Construction type	preposition and postverb		
Caused-motion	<i>zai</i> (in/at/on)	<i>dao</i> (reach)	<i>jin</i> (enter)
Resultative	<i>cheng</i> (become)	<i>wei</i> (as)	<i>zuo</i> (as)
Caused-transfer	<i>gei</i> (give)	<i>yu₁</i> (to)	<i>yu₂</i> (to)

The transitive postverbals of the caused-motion BA-constructions contain many types of prepositions or postverbs, such as *zai* (at/in/on), *dao* (reach), *zhi* (reach), *xiang* (towards), *jin*

(enter), *ru* (enter), *shang* (up), *xia* (down), *chu* (exit), *hui* (return), *huan* (return) and so on. The preposition *zai* (in/at/on) and the postverbs *dao* (reach) and *jin* (enter) (see the first line of Table 9.8) are chosen for analysis. They are common and all designate the goal of the caused-motion. The preposition *zai* (in/at/on) denotes the final location; the postverb *dao* (reach) denotes the reaching of the final location; the postverb *jin* (enter) denoting the meaning of entering a space.

The resultative BA-constructions have fewer postverbs. The commonly used ones include *cheng* (become), *wei* (as) and *zuo* (as). The caused-transfer BA-constructions have even fewer postverbs. The three postverbs found in the data are *gei* (give), *yu*₁ (to) and *yu*₂ (to). They even have very similar meanings.

Since a basic type of explicit BA-constructions can have various postverbs or prepositions, the verbs attracted to a basic type, I argue, must be different from the verbs attracted to the explicit BA-constructions in general. I also argue that the explicit BA-constructions with different postverbs also attract different verbs. To support these two statements, I will conduct the collostructional analysis of each type of the basic explicit BA-constructions at the two levels (see Figure 9.2). In the study of the explicit caused-motion BA-construction, for instance, both the explicit caused-motion BA-construction in general and the explicit caused-motion BA-construction with a particular transitive postverb or a preposition (see Table 9.4.). The same treatment is applied also to the explicit resultative BA-constructions and the explicit caused-transfer BA-constructions.

In the following three sections I discuss these three basic types at two different levels. Section 9.5 discusses the caused-motion BA-constructions. Section 9.6 discusses the resultative BA-constructions. Section 9.7 discusses the caused-transfer BA-constructions.

9.5 Caused-motion BA-constructions at two levels

The explicit caused-motion BA-constructions are treated at two different levels. At the high level, all the caused-motion BA-constructions are under investigation; at the low level, only the caused-motion BA-constructions containing the selected transitive postverbs (or preposition) are investigated. They are the preposition *zai* (in/at/on), the postverb *dao* (reach) and the postverb *jin* (enter). They can only occur in the caused-motion BA-constructions. In other words, the BA-constructions containing the selected post-words *zai* (in/at/on), *dao* (reach) and *jin* (enter) must be the caused-motion BA-constructions.

The explicit caused-motion BA-constructions at the high level are called general

caused-motion BA-constructions. The general caused-motion BA-constructions are expected to attract more groups of verbs (see Section 9.5.1). In other words, more verbs are attracted to the general caused-motion BA-constructions. Fewer verbs are attracted to the caused-motion BA-construction with a specific postverb or preposition (see Sections 9.5.2, 9.5.3 and 9.5.4).

9.5.1 General caused-motion BA-constructions

I manually separated the explicit caused-motion BA-constructions from the explicit resultative BA-constructions and the explicit cause-to-transfer BA-constructions and then calculated their respective token frequency. I submitted the frequencies of various verbs occurring in the caused-motion BA-constructions into the R software and yielded a rank of the verbs attracted to the caused-motion BA-construction. The top twenty attracted verbs are ranked in Table 9.9.

Table 9.9 Collexeme analysis of caused-motion BA-construction

No	Verbs	obs.freq ⁴	exp.freq	coll.strength
1	<i>dai</i> (carry)	341	15.54685	Inf ⁵
2	<i>fang</i> (put)	1133	14.88624	Inf
3	<i>song</i> (send)	396	6.388866	Inf
4	<i>tui</i> (push)	249	3.660477	Inf
5	<i>yin</i> (lead)	224	2.212575	Inf
6	<i>la</i> (pull)	248	6.651299	296.7976
7	<i>na₁</i> (take/hold)	245	10.83664	237.9134
8	<i>shen</i> (stretch)	134	1.615315	213.6963
9	<i>gan</i> (drive)	130	2.859606	167.9935
10	<i>ban</i> (carry/move)	105	1.289537	166.5801
11	<i>na₂</i> (take-in)	85	0.642506	159.1529
12	<i>tou</i> (throw)	101	1.343834	155.9851
13	<i>sai</i> (stuff)	88	0.959235	145.4698
14	<i>jie</i> (receive)	140	5.538224	143.1266

⁴ 'Obs.freq' designates the observed frequency of the verb occurring in caused-motion BA-construction.

⁵ Inf refers to the fact that the collostructional strength of the investigated lexeme is infinite to the construction.

15	<i>reng</i> (throw)	99	1.144747	141.2302
16	<i>pao</i> (throw)	76	0.800871	127.188
17	<i>ti</i> (lift)	133	6.221453	126.1967
18	<i>bao</i> (hug)	105	3.646903	113.6802
19	<i>tai</i> (uplift)	84	1.814402	109.6054
20	<i>zhi</i> (set/put)	270	1.221667	106.3731

For the convenience of analysis, these twenty verbs are put into seven groups as listed in Table 9.10 below.

Table 9.10 Verb groups attracted to caused-motion BA-constructions

No.	Semantic groups	verbs
1	Putting	<i>fang</i> (put), <i>sai</i> (stuff), <i>zhi</i> (set/put)
2	Throwing	<i>tou</i> (throw), <i>reng</i> (throw), <i>pao</i> (throw)
3	Sending	<i>song</i> (send)
4	Driving with force	<i>tui</i> (push), <i>la</i> (pull), <i>gan</i> (drive), <i>yin</i> (lead)
5	Stretching	<i>shen</i> (stretch)
6	Receiving/taking	<i>jie</i> (receive), <i>na₂</i> (take-in)
7	Holding/carrying	<i>ban</i> (carry/move), <i>dai</i> (take with), <i>na₁</i> (take/hold), <i>ti</i> (lift), <i>bao</i> (hug), <i>tai</i> (uplift)

Although these verbs are all attracted to the caused-motion BA-constructions, they are not synonymous. The verbs and the BA-constructions in which the verbs are licensed, as I argued, are expected to be semantically compatible. Then the question arises. How are these verbs semantically compatible with the caused-motion BA-constructions?

It is obvious that the twelve verbs of the first five groups (see Table 9.7) all have the meaning that something is moved. In other words, they all carry certain caused-motion meaning.

The verbs of the sixth and the seventh groups, however, do not have the ‘caused-motion’ meaning. Although they do not have such meaning, they are still licensed in the caused-motion BA-construction. The reason behind it is that all these verbs serve as the pre-condition for the

caused-motion. That is, the verb meaning is coherently associated with the caused-motion meaning designated by the co-occurring postverb. Example 3 conveys the message that someone picked up the girl and took her on board.

- 3 *ba gu-niang jie shang chuan*
 BA girl pick up boat
 ‘[Someone] picked up the girl and took her on board.’

In human experiences, picking up somebody is usually followed by taking him to somewhere. In this sense, the event of picking up someone, designated by Example 3, functions as the pre-condition for the event of taking her onto the boat. This receiving event, therefore, serves as the pre-condition for the motion event of embarking, expressed by the postverbal *shang chuan* (embark).

Similarly, the verbs of the last group also function as the pre-condition for the caused-motion event expressed by the sentence. Both the verb *na* (take/hold) and the verb *ti* (lift) also as the pre-condition for the caused-motion. Example 4 conveys the message that someone took the pen down from the pocket. Example 5 conveys the message that someone took the water bucket into the room.

- 4 *ba gang-bi cong kou-dai li na xia-lai*
 BA pen from pocket inside take down
 ‘[Someone] took the pen down from the pocket.’

- 5 *ba shui tong ti jin wu li*
 BA water bucket lift enter room inside
 ‘[Someone] took the water bucket into the room.’

In sum, the twenty verbs can be classified into two groups. One contains the cause-to-move meaning and the other contains the meaning which functions as the pre-condition of the caused-motion and which is coherently extended to the caused-motion. Both the types are semantically compatible with the caused-motion meaning of the caused-motion BA-construction.

The explicit cause-motion BA-constructions are further divided into ones with transitive postverbals. The transitive postverbals are led by a preposition or a postverb. In this chapter three frequent post-words are examined – i.e. the preposition *zai* (in/at/on) and the postverbs *dao* (reach) and *jin* (enter). In the following three sub-sections, I apply the co-varying analysis to the caused-motion BA-construction with the preposition *zai* (in/at/on) in Section 9.5.2, the caused-motion BA-construction with the direction postverb *dao* (reach) in Section 9.5.3 and the caused-motion BA-construction with the direction postverb *jin* (enter) in Section 9.5.4.

9.5.2 Caused-motion BA-construction with *zai*

The sentence final prepositional phrase led by the preposition *zai* (in/at/on) in the explicit BA-construction designates the final location where the caused-motion ends. In the study of the caused-motion BA-construction with *zai* (in/at/on), the co-varying analysis is used to explore the co-occurring relations between various verbs and the preposition *zai* (in/at/on). The collostructional strength of the twenty top-list verbs is ranked in Table 9.11, demonstrating the degree of attractedness between the verbs and the preposition *zai* (in/at/on) in the caused-motion BA-constructions.

Table 9.11 Co-varying analysis of the preposition *zai*

NO	w1 ⁶	(obs.w1_2.in_c/exp.w1_2.in_c) ⁷	coll.strength
1	<i>fang</i> (put)	(747/434.07)	112.106608
2	<i>pao</i> (toss)	(161/83.06)	32.944015
3	<i>tie</i> (stick)	(41/20.1)	10.245445
4	<i>liu</i> (hold/save)	(29/13.84)	8.012746
5	<i>bai</i> (arrange)	(55/31.71)	7.83946
6	<i>bao</i> (hold/hug)	(66/41.98)	6.407206
7	<i>ji</i> (remember)	(33/18.76)	5.149084
8	<i>mai</i> (bury)	(33/18.76)	5.149084

⁶ w1 designates the verb co-occurs with *zai* (in/at/on).

⁷ The ‘obs.w1_2.in_c’ designates that the observed frequency of the word 1 occurring with the word 2, the co-occurring preposition *zai* (in/at/on) in the caused-motion BA-construction. The ‘exp.w1_2.in_c’ refers to the expected frequency of the word 1, occurring with the same word 2 in the same caused-motion BA-construction.

9	<i>kao</i> (lean on)	(17/8.04)	4.946883
10	<i>shuan</i> (tie)	(19/9.38)	4.823211
11	<i>cang</i> (hide)	(28/15.63)	4.708254
12	<i>jia</i> (clip)	(16/7.59)	4.618975
13	<i>guan</i> (lock)	(32/18.76)	4.516767
14	<i>lou</i> (hold/hug)	(13/6.25)	3.644792
15	<i>tao</i> (cover)	(13/6.25)	3.644792
16	<i>an</i> (fix)	(10/4.47)	3.505602
17	<i>bang</i> (tie)	(10/4.47)	3.505602
18	<i>ting</i> (stop)	(12/5.81)	3.323926
19	<i>tu</i> (spread)	(9/4.02)	3.15459
20	<i>sa</i> (spray)	(11/5.36)	3.005444

For the convenience of analysis, these top twenty verbs are put into five semantic groups as illustrated in Table 9.12.

Table 9.12 Verb groups attracted to the BA-construction with *zai*

No.	Semantic groups	verbs
1	Putting	<i>fang</i> (put), <i>bai</i> (arrange), <i>kao</i> (lean), <i>mai</i> (bury), <i>cang</i> (hide), <i>tie</i> (stick), <i>tu</i> (spread), <i>ji</i> (memorise)
2	Attaching	<i>tao</i> (cover), <i>jia</i> (clip), <i>bang</i> (tie), <i>shuan</i> (tie), <i>an</i> (fix)
3	Throwing	<i>pao</i> (toss), <i>sa</i> (spray)
4	Stopping	<i>guan</i> (close), <i>ting</i> (stop), <i>liu</i> (save, hold),
5	Holding	<i>lou</i> (hold/ put the arm around), <i>bao</i> (hug/hold)

It is worthwhile to point out that the verb *ji* (memorise) falls into the category of the putting verbs. Metaphorically, *ji* (memorise) describes an event that something which was previously not in someone's mind, but now it is. In this sense, *ji* (memorise) is metaphorically understood as putting

some information in one's mind.

All the **putting** verbs, **attaching** verbs and throwing verbs in the first three groups (see Table 9.12) contain the semantic property of relocating. They all designate that the moved entity is removed to a new place. In this sense, all the verbs of the three groups are semantically compatible with the caused-motion BA-construction with *zai* (in/at/on).

The **stopping** verbs such as *guan* (close), *ting* (stop), *liu* (save, hold) denote that the entity is prevented from being relocated to a new place. In other words, the prepositional phrase designates the 'negatively' relocated place. In other words, they are also semantically compatible with the caused-motion sense.

The verbs in the first four groups discussed previously share the semantic property of caused-motion, while the preposition denotes the final location of the caused-motion. In this sense, the two words are semantically compatible. The **holding** group, such as *lou* (put the arm around) and *bao* (hug/hold), for instance, though having no caused-motion sense, can be interpreted as the pre-condition for the caused-motion whose terminal location is specifically designated by the following prepositional phrase led by *zai* (in/at/on). Example 6, for instance, conveys the message that *Shen-liang* held the younger sister tightly to her bosom.

- 6 *shen-liang* *jin-jin-de* *ba* *mei-mei* *bao* *zai* *huai* *li*
 Shen-liang tightly BA younger sister hold at bosom inside
 ‘*Shen-liang* held the younger sister to her bosom tightly.’

The action designated by the verb *bao* (hug/hold) is interpreted as a sub-event that leads to the terminal location of her arms. In this interpretation, the holding action is understood as the pre-condition for the moving entity ending up in the final location designated by the prepositional phrase *zai huai-li* (in someone's arms).

In the comparison of the verb list in Table 9.12 with the verb list for the general caused-motion BA-construction in Table 9.10, it is observed that both the lists share merely two verbs – i.e. *fang* (put) and *pao* (throw). This obviously indicates that the general caused-motion BA-constructions and the caused-motion BA-construction with *zai* (in/at/on) mainly attract different groups of verbs. The possible reason behind their different is that the general caused-motion BA-constructions contain various Z-XP with different senses, including the sense designated by *zai* (in/at/on).

It is very important to report that the semantic compatibility is also specified in the caused-motion BA-constructions with *zai* (in/at/on). The prepositional phrase led by *zai* (in/at/on) denotes the terminal location of motion, while eighteen out of the twenty attracted verbs illustrated in Table 9.12 inherit the sense of the terminal location. This discovery leads to the conclusion that the semantic compatibility is much clearer at the specific level. This statement will be further tested with the caused-motion BA-constructions with the postverb *dao* (reach), which has the sense of reaching the terminal location of the designated motion. Section 9.5.3 will study the caused-motion BA-constructions with the postverb *dao* (reach).

9.5.3 Caused-motion BA-construction with *dao*

To investigate the attracted verbs of the caused-motion BA-construction with the postverb *dao* (reach), the co-varying analysis is also used. The postverb *dao* (reach) bears the meaning that the moving entity reaches the final location. To uncover the verbs most highly attracted to the caused-motion BA-construction with *dao* (reach), I submitted the verbs and the postverb *dao* (reach) to the R software to run the co-varying analysis. The computation has yielded the following verb list, indicating the collostructional strength rank of the twenty most highly attracted verbs (see Table 9.13).

Table 9.13 Co-varying analysis of the postverb *dao* (reach)

NO	w1	(obs.w1_2.in_c/exp.w1_2.in_c)	coll.strength
1	<i>song</i> (send)	(173/78.01)	38.708482
2	<i>dai</i> (carry)	(131/60.21)	27.758546
3	<i>ti</i> (lift)	(65/23.26)	26.425504
4	<i>la</i> (pull)	(75/33.53)	17.189205
5	<i>yi</i> (move)	(44/17.11)	14.483162
6	<i>ban</i> (remove)	(43/17.45)	12.754048
7	<i>tui</i> (push)	(47/19.84)	12.613215
8	<i>nong</i> (handle)	(30/11.29)	10.822156

9	<i>jiao</i> (call)	(32/12.66)	10.206461
10	<i>qing</i> (invite)	(27/10.26)	9.538261
11	<i>zhuan</i> (turn)	(30/11.97)	9.391769
12	<i>na</i> (take/hold)	(34/14.37)	9.23441
13	<i>chuan</i> (pass)	(34/14.37)	8.393324
14	<i>yun</i> (transport)	(24/9.24)	8.269269
15	<i>tiao</i> (adjust)	(25/9.92)	8.001091
16	<i>kai</i> (drive)	(23/9.24)	7.191175
17	<i>di</i> (pass)	(15/5.82)	5.203347
18	<i>pai</i> (send on mission)	(11/3.76)	5.132459
19	<i>xue</i> (learn)	(11/3.76)	5.132459
20	<i>tai</i> (carry)	(23/10.95)	4.836862

The top twenty verbs attracted to the caused-motion BA-construction with *dao* (reach) are put into six groups for discussion (see Table 9.13).

Table 9.14 Verb groups attracted to the caused-motion BA-construction with *dao*

No	Semantic groups	verbs
1	Moving	<i>la</i> (pull), <i>yi</i> (remove), <i>ban</i> (remove), <i>tui</i> (push), <i>zhuan</i> (turn), <i>chuan</i> (pass), <i>yun</i> (transport)
2	Sending	<i>song</i> (send), <i>di</i> (pass on to), <i>pai</i> (send on mission), <i>kai</i> (drive), <i>tiao</i> (adjust)
3	Inviting	<i>jiao</i> (call), <i>qing</i> (invite)
4	Learning	<i>xue</i> (learn)
5	Handling	<i>nong</i> (handle)
6	Holding/carrying	<i>dai</i> (carry), <i>na</i> (hold/take), <i>ti</i> (lift), <i>tai</i> (carry)

Following the argument that the attracted verbs are semantically compatible with their co-occurring postverb in the explicit BA-construction, the most highly attracted verbs, I argue, should have the similar meaning of *dao* (reach) or have the meaning coherently extended to the reaching meaning.

The sense of reaching some location, factively or fictively, presupposes some trace of caused-motion. In comparison with the meaning of final location designated by the preposition *zai* (in/at/on), the postverb *dao* (reach), de-emphasises the sense of final location. For this reason, the putting verbs, the attaching verbs and stopping verbs, which are very compatible with the preposition *zai* (in/at/on) semantically, are not on the most highly attracted verb list in the case of the postverb *dao* (reach).

Since no verbs in the list inherit the reaching sense, they all function as the pre-condition for the reaching event denoted by the postverb *dao* (reach). The verbs co-occurring with the postverb *dao* (reach) should have the semantic extension to the sense reaching. The verbs of the first two groups – i.e. **moving** verbs and **sending** verbs – all have some semantic extension.

The two verbs of the **inviting** class – i.e. *jiao* (call) and *qing* (invite) – in the third group listed in Table 9.14 are very similar to the **sending** verbs, such as *song* (send) and *di* (pass onto) and *pai* (send on a mission) in the sense that the verbs of the two groups can also have such semantic extension. To invite someone to somewhere, for instance, is understood to expect the invited to reach that place. Analogically, to send something somewhere is to make it reach that place.

The learning process denoted by the verb *xue* (learn), for example, can be metaphorically interpreted as the fictive motion of the knowledge to reach the goal. Example 7, for instance, conveys the message that someone learned the experience from his father.

- | | | | | | | | | |
|---|-----------|------------------|---------------|----------------|------------|------------|-----------|-------------|
| 7 | <i>ba</i> | <i>fu-qin-de</i> | <i>na-tao</i> | <i>jin-yan</i> | <i>xue</i> | <i>dao</i> | <i>le</i> | <i>shou</i> |
| | BA | father's | that | experience | learn | reach | ASP | hand |
- ‘[Someone] learned the experience from his father.’

The experience designated by Example 7 is understood metaphorically as a moving entity which reaches the learner's mind at the point the learning process is completed. Thus, the verb meaning is metaphorically compatible with the semantic property of the postverb *dao* (reach).

Similar semantic compatibility is also understood in the case of the verb *nong* (handle).

Example 8 conveys the message that someone did something to him so as to move him from the hospital to his home.

- 8 *ba ta cong yi-yuan nong dao jia*
BA he from hospital handle reach home
‘[Someone] took him home from the hospital.’

In this BA-sentence, the verb *nong* (handle) is understood as some unspecified action that serves as the pre-condition to move the entity to reach someplace.

I notice that **holding/carrying** verbs (see Table 9.11) can also serve as a pre-condition not only for the caused-motion, whose terminal point is specified by the preposition *zai* (in/at/on) but also for the caused-motion whose motion reaches the terminal point. The latter choice can be illustrated in the following Example 9, which denotes that someone took my deck chair out of the window.

- 9 *ba wo-de shui-yi na dao chuang-wai lai*
BA my deck chair take reach window outside come
‘[Someone] took my deck chair out of the window.’

The taking event designated by the verb *na* (hold) is said to serve as the pre-condition for the motion of the entity *shui-yi* (deck chair) to the final place specified by the ‘outside of the window’. That is to take the chair is to move it out of the window. The reason to move it is to make it reach the designated destination. It is our common experience that a taking event is followed by a moving and reaching event.

In sum, the verbs most highly attracted to the caused-motion BA-construction with *dao* (reach) are semantically compatible with the postverb *dao* (reach) in the way that the verbs have the semantic property of motion or have the meaning of taking and controlling. The verbs and the postverb *dao* (reach) are semantically compatible in the sense that the verbs can serve as pre-condition for the reaching event.

9.5.4 Caused-motion BA-construction with *jin*

The third sub-type of the caused-motion BA-construction I am discussing in this section is the one containing the postverb *jin* (enter), which denotes the motion trace into an encircled space. The most highly attracted verbs are expected to have meanings associated with such semantic properties. To study the co-occurring verbs and the postverb *jin* (enter), I again adopted the co-varying analysis and yielded the ranking of the most highly attracted twenty verbs as listed in Table 9.15.

Table 9.15 Co-varying analysis of the postverb *jin* (enter)

NO	w1	(obs.w1_2.in_c/exp.w1_2.in_c)	coll.strength
1	<i>sai</i> (stuff)	(38/7.48)	18.69764
2	<i>shen</i> (stretch)	(31/5.94)	15.758509
3	<i>rang</i> (let)	(17/2.66)	10.81329
4	<i>zhuang</i> (load)	(25/6.55)	9.035712
5	<i>cha</i> (insert)	(22/7.07)	6.19165
6	<i>ling</i> (lead)	(14/4.1)	4.657452
7	<i>dao</i> (pour)	(20/8.5)	3.718497
8	<i>reng</i> (throw)	(14/5.12)	3.471494
9	<i>song</i> (send)	(40/23.35)	3.402414
10	<i>yin</i> (lead)	(24/12.19)	3.09598
11	<i>xi</i> (suck)	(5/0.92)	3.0083
12	<i>tun</i> (swallow)	(5/1.02)	2.745264
13	<i>gan</i> (drive)	(9/3.17)	2.528501
14	<i>shou</i> (collect)	(5/1.13)	2.51991
15	<i>zuan</i> (drill)	(3/0.41)	2.403727
16	<i>po</i> (force)	(2/0.2)	1.980131
17	<i>xian</i> (raise)	(2/0.2)	1.980131
18	<i>dai</i> (carry)	(28/18.02)	1.943252
19	<i>diu</i> (throw)	(9/3.89)	1.90215
20	<i>tai</i> (uplift)	(8/3.28)	1.882189

For the convenience of discussion, these verbs can be re-organised into the following six semantic groups (see Table 9.16).

Table 9.16 Verb groups attracted to Caused-motion BA-construction with *jin* (enter)

No	Semantic groups	verbs
1	Moving into an encircled space	<i>sai</i> (stuff), <i>shen</i> (stretch), <i>zhuang</i> (load), <i>cha</i> (insert), <i>zuan</i> (drill), <i>xi</i> (suck), <i>tun</i> (swallow)
2	Throwing	<i>dao</i> (pour), <i>reng</i> (throw), <i>diu</i> (throw)
3	Driving/sending	<i>gan</i> (drive), <i>ling</i> (lead), <i>yin</i> (lead), <i>song</i> (send), <i>po</i> (force)
4	Lifting	<i>xian</i> (raise) , <i>tai</i> (uplift)
5	others	<i>dai</i> (carry), <i>shou</i> (collect), <i>rang</i> (let)

The seven verbs of the first group listed in Table 9.16 suggest that the entity is moved into an encircled space. Examples 10a, 10b and 10c, for instance, convey the message that someone moved something into some encircled space (or stomach is regarded as a container.). The encircled space is explicitly expressed by *yi-dou* (jacket pocket) in 10a, by *xin-feng* (envelope) in 10b, and by *wei* (stomach) in 10c. Example 10a conveys the message that someone stuffed the letter into the jacket pocket. Example 10b conveys the message that *Chen, Jian-guang* put the written letter into the envelope. Example 10c conveys the message that someone sucked the air into the stomach.

10a *ba xin sai jin yi-dou*

BA letter stuff enter pocket

‘[Someone] stuffed the letter into the jacket pocket.’

10b *chen Jian-guang ba xie-hao-de xin zhuang jin xin-feng*

Chen Jian-guang BA written letter put enter envelope

‘*Chen, Jian-guang* put the written letter into the envelope.’

10c *ba kong-qi xi jin wei li*
 BA air suck enter stomach inside

‘[Someone] sucked the air into the stomach.’

The verbs *sai* (stuff), *zhuang* (load) and *xi* (suck) all can designate actions moving the acted entity into an encircled space. Thus, the verbs of this group are semantically compatible with the postverb *jin* (enter).

The throwing group, driving group and lifting group all have the caused-motion meaning and they function as the pre-condition for the motion into an encircled space. That is, the caused-motion meaning is provided by the main verb, while the meaning of entering into an encircled space is given by the postverb *jin* (enter). Examples 11a 11b and 11c, for instance, convey the message of such caused-motion. Example 11a conveys the message that someone poured the two buckets of water into her vat; Example 11b conveys the message that he drove the piglets into the pigsty; Example 11c conveys the message that someone lifted the bricks and stones on the well-edge and pushed them into the well.

11a *ba liang-tong shui dao jin ta-jia shui-gang li*
 BA two buckets water pour enter her-home vat inside

‘[Someone] poured the two buckets of water into her vat.’

11b *ta ba zhu-zai gan jin zhu-juan*
 He BA piglet drive enter pigsty

‘He drove the piglets into the pigsty.’

11c *ba jing-tai shang de zhuan-shi xian jin jing li qu*
 BA well-edge up POS brick-stone lift enter well inside go

‘[Someone] lifted the bricks and stones on the well-edge and [pushed them] into the well.’

The other verbs (see Table 9.13), including the verbs *shou* (collect), *dai* (carry) and *rang* (let) also serve as the pre-condition for the motion into an encircled space. Both 12a and 12b contain such verbs. 12a conveys the message that someone collected the new swarm of bees and put them into

the hive; 12b conveys the message that someone carried his father into the hospital; 12c conveys the message that someone let the guests into the house.

12a *ba xin feng-qun shou jin feng-xiang li*
 BA new swam of bees collect enter beehive inside
 ‘[Someone] collected the new swarm of bees and put them into the hive.’

12b *ba fu-qing tai jin le yi-yuan*
 BA father uplift enter ASP hospital
 ‘[Someone] carried his father into the hospital.’

12c *ba ke-reng rang jin wu li*
 BA guest let enter room inside
 ‘[Someone] let the guests into the house.’

The verb *shou* (collect) can be associated to the motion into an encircled space because it is a common practice for a collector or receiver to put what he has collected into a container. Analogically, one usually carries something and then moves it possibly into an encircled space. It is also a common practice to let some guests into one house.

9.5.5 Discussion

In all, the attracted verbs to the caused-motion BA-construction display a wide range of verb groups. The verbs co-occur with the postverbs or prepositions in the caused-motion BA-construction, however, display a more specific range of verb groups. The semantic compatibility between the verbs and the postverbs or prepositions do exist. The different types of semantic compatibility between them also exist. At least two types of semantic compatibility are worth discussing. First, the verb meaning is similar with the postverb or preposition meaning. Second, the attracted verb serves as the pre-condition for the motion or its destination specified by the postverb or preposition.

Different postverbs and prepositions carry different semantic properties, their associated verbs also differ. To be more specific, the preposition *zai* (in/at/on), the postverb *dao* (reach) and the

postverb *jin* (enter) are inclined to co-occur with different verbs. The preposition *zai* (in/at/on) has the tendency to co-occur with the verbs containing the semantic property of terminal position, such as *fang* (put) and *tie* (stick). These verbs are not found to co-occur with other postverbs discussed in the section. While the postverb *dao* (reach) has the tendency to attract the verbs containing the semantic property of reaching, such as *ban* (move) and *yun* (transport). The postverb *jin* (enter) has the tendency to co-occur with more verbs with the reading of the motion into a certain encircled space, such as *sai* (stuff) and *cha* (insert). The attracted verbs can also function as the pre-condition for various caused-motions.

The verbs most highly attracted to the general caused-motion BA-construction are very different from those attracted to the caused-motion BA-constructions with specific prepositions or postverbs. In other words, caused-motion BA-constructions at different levels attract different verbs. Their difference serves as a strong evidence for the claim that caused-motion BA-constructions at these two different levels do attract different verbs via their semantic compatibility. Their difference also serves as an evidence to support the argument that BA-construction is a family of constructions and even the caused-motion BA-constructions are necessary to be accounted for at different levels. To account for the verb-construction relations, different levels of the network representing the BA-construction family are very helpful and sometimes even indispensable.

9.6 Resultative BA-constructions at two levels

Just like the caused-motion BA-constructions, the resultative BA-constructions are also better accounted for at two levels. In the study of the caused-motion BA-constructions, it is discovered with statistical evidence that the caused-motion BA-constructions of the different levels attract different groups of verbs. It is also discovered that more specific semantic relations between verbs and their co-occurring postverbs or prepositions are found in the caused-motion BA-constructions at the specific level. Now, I contend that what I discovered in the study of the caused-motion BA-constructions also exist in the resultative BA-constructions. I support my statement also with statistical evidence yielded from the collostructional analysis as it was done to the caused-motion BA-constructions in the previous sub-sections.

The resultative BA-constructions of the two different levels, like their counterparts in the caused-motion BA-constructions attract also different groups of verbs. Thus, it is also necessary to

discuss the resultative BA-constructions at two levels. Section 9.6.1 discusses the general resultative BA-constructions

Chinese resultative BA-constructions have various postverbs or post-adjectives. These post-words have much lower token-frequency than the postverbs in the caused-motion BA-constructions. In the study of the verb-postverb semantic relations, the postverbs I examine are the three transitive postverbs with highest frequency count. They are *cheng* (become), *wei* (as) and *zuo* (as). The resultative postverb *cheng* (become) emphasises the process and the final state of the change (see Section 9.6.2), while *wei* (as) and *zuo* (as) are similar in meaning and both emphasise merely the final state of the change involved (see Sections 9.6.3 and 9.6.4).

9.6.1 General resultative BA-constructions

The general resultative BA-construction is very much like the skeletal resultative construction by Goldberg (1995). By conducting the collexeme analysis of the resultative BA-constructions in general, the top twenty verbs most highly attracted to the general resultative BA-constructions are ranked in Table 9.17.

Table 9.17 Collexeme analysis of resultative BA-construction

No	Verbs	obs.freq	exp.freq	coll.strength
1	<i>bian</i> (change)	373	11.62011	Inf
2	<i>cheng</i> (name)	291	5.118383	Inf
3	<i>dang</i> (take-as)	797	8.344947	Inf
4	<i>fen</i> (divide)	421	10.33771	Inf
5	<i>kan</i> (see)	850	51.42686	Inf
6	<i>zuo</i> (take-as)	752	20.14078	Inf
7	<i>jiao</i> (call)	342	22.58594	272.7575
8	<i>nong</i> (handle)	164	3.708865	208.3199
9	<i>shi</i> (see)	126	1.413257	203.4838
10	<i>da</i> (hit)	231	17.49747	170.9391
11	<i>gao</i> (handle)	173	7.795347	166.2166
12	<i>gai</i> (change)	120	2.964849	147.7216

13	<i>lie</i> (list)	62	0.736539	98.7232
14	<i>ti</i> (uplift)	83	5.140816	68.89782
15	<i>xie</i> (write)	115	13.97554	63.60233
16	<i>bi</i> (compare)	61	2.908767	57.69544
17	<i>si</i> (tear)	36	0.433698	57.4326
18	<i>jing</i> (stonish)	34	0.912261	41.23105
19	<i>shao</i> (burn)	47	2.934939	39.26627
20	<i>zha</i> (explode)	31	0.744016	39.25297

Since the general resultative BA-constructions have a wider coverage, more verbs are possible to be attracted to them. The top twenty attracted verbs may be put into ten semantic groups (see Table 9.18)

Table 9.18 Verb groups attracted to resultative BA-constructions

No	group	verbs
1	changing	<i>bian</i> (change), <i>gai</i> (change) <i>si</i> (tear),
2	affecting	<i>shao</i> (burn), <i>zha</i> (explode)
3	dividing	<i>fen</i> (divide)
4	creating	<i>lie</i> (list), <i>xie</i> (write),
5	naming	<i>cheng</i> (name), <i>jiao</i> (call)
6	handling	<i>nong</i> (handle), <i>gao</i> (handle)
7	emotion	<i>jing</i> (stonish)
8	perceiving	<i>kan</i> (see), <i>shi</i> (see)
9	cognition	<i>dang</i> (take-as), <i>zuo</i> (take-as), <i>bi</i> (compare)
10	others	<i>da</i> (hit), <i>ti</i> (uplift)

The first two groups include the verbs containing the meaning of the state change. The verb *fen* (divide) can also be interpreted as the verb of action that causes its trajector-object to be involved in a change of state. That is, anything being divided is understood as the thing that is involved in a change of state.

A creating action is understood as an action that makes a new thing out of nothing or out of something else. In this sense, the creating verbs in the fourth group are also understood as verbs with affecting force. The two naming verbs in the fifth group are understood to denote the meaning of creation in some speech act. Therefore, the verbs of the two groups are all semantically compatible with the resultative BA-constructions.

The verbs of handling, although inheriting some weaker affecting force, are still understood to have the affecting potential.

The seventh group, the eighth group and the ninth group include mental verbs. They all carry the meaning that the relevant trajector-objects are involved in a mental change.

In all, the twenty top-list verbs all have some affecting force and are all semantically compatible with the resultative BA-constructions.

9.6.2 Resultative BA-construction with postverb *cheng* (become)

The postverb *cheng* (become) indicates that an entity changes its state in a process. The postverb *cheng* (become) marks both the change process and its final state. I use R software to calculate the collostructional strength between the verbs and the postverb *cheng* (become). The Table 9.19 displays the twenty most highly attracted verbs to the resultative BA-construction containing the postverb *cheng* (become).

Table 9.19 Co-varying analysis of the postverb *cheng* (become)

	NO	w1	(obs.w1_2.in_c/exp.w1_2.in_c)	coll.strength
1	<i>shuo</i>	(tell)	(140/52.89)	59.364159
2	<i>bian</i>	(change)	(254/132.04)	42.497284
3	<i>xie</i>	(write)	(52/21.38)	16.719217
4	<i>jian</i>	(build)	(28/10.5)	11.987567
5	<i>da</i>	(hit)	(23/8.63)	9.8371
6	<i>ban</i>	(handle)	(22/8.25)	9.407522
7	<i>kan</i>	(see)	(324/255.83)	8.411863
8	<i>huan</i>	(change)	(22/9)	7.348276

9	<i>zu</i> (group)	(17/6.38)	7.262208
10	<i>zao</i> (build)	(16/6)	6.833658
11	<i>gao</i> (handle)	(15/5.63)	6.40528
12	<i>nong</i> (handle)	(14/5.25)	5.977072
13	<i>qie</i> (cut)	(14/5.25)	5.977072
14	<i>lian</i> (link)	(13/4.88)	5.549035
15	<i>zhi</i> (make)	(12/4.5)	5.121168
16	<i>hua</i> (draw)	(10/3.75)	4.265944
17	<i>yi</i> (translate)	(15/6.75)	4.052729
18	<i>he</i> (combine)	(9/3.75)	3.016696
19	<i>lian</i> (refine)	(7/2.63)	2.984383
20	<i>pai</i> (arrange)	(7/2.63)	2.984383

The twenty verbs as listed in Table 9.19 can be put into at least seven semantic groups (see Table 9.20).

Table 9.20 Verb classes co-occurring with *cheng* (become)

No	Semantic groups	verbs
1	Changing	<i>bian</i> (change), <i>qie</i> (cut), <i>lian</i> (refine),
2	Creating	<i>jian</i> (build), <i>zao</i> (build/make), <i>zhi</i> (make), <i>hua</i> (draw), <i>xie</i> (write), <i>yi</i> (translate), <i>shuo</i> (tell), <i>pai</i> (arrange)
3	handling	<i>Ban</i> (handle), <i>gao</i> (handle), <i>nong</i> (handle)
4	Perceiving	<i>kan</i> (see)
5	Combining	<i>zu</i> (group), <i>lian</i> (link), <i>he</i> (combine)
6	Exchanging	<i>huan</i> (exchange)
7	other	<i>da</i> (hit)

The first four groups are also found in the general resultative BA-construction (see Table 9.18). Yet, the changing group, the creating group and the handling group include more instances of verbs (see

Table 9.20). They are all proved to have affecting force. In this sense, they are all semantically compatible with the postverb *cheng* (become). Example 13a (containing the verb *bian*) conveys the message that someone changed the flower into a dove; Example 13b (containing the verb *jian* (build)) conveys the message that someone built the capital into a clean and beautiful city; Example 13c (containing the verb *nong* (handle)) conveys the message that someone made the soup with the fish; Example 13d (containing the verb *kan* (see)) conveys the message that *Shuang-tian* took the writing as his obligation.

13a *ba hua bian cheng le ge-zi*

BA flower change become ASP dove

‘[Someone] changed the flower into a dove.’

13b *ba shou-du jian cheng qin-jie mei-li-de cheng-shi*

BA capital build become clean beautiful city

‘[Someone] built the capital into a clean and beautiful city.’

13c *ba yu nong cheng tang*

BA fish handle become soup

‘[Someone] made the soup with the fish.’

13d *Shuang-tian ba xie-zuo kan cheng yi-zhong ze-ren*

Shuang tian BA writing see become a responsibility

‘*Shuang, Tian* took the writing as his obligation.’

All the trajector-objects in the four exemplified BA-sentences are interpreted as the new entities made out of nothing or something else. In this sense, they are all semantically compatible with the postverb *cheng* (become).

The combining verbs in the fifth group and the exchanging verbs in the sixth group also have certain creation interpretation. Their trajector-objects can all be interpreted as the new entities made out of something else. Example 14a conveys the message that someone grouped them into a class; Example 14b conveys the message that every commodity producer must exchange his goods for

money.

14a *ba ta-men zu cheng yi-ge ban*
BA they group become a class
‘[Someone] grouped them into a class.’

14b *mei-ge shang-pin sheng-chan-zhe bi-xu ba shang-pin*
Every product producer must BA product

huan cheng huo-bi
change become money
‘Every commodity producer must change his goods into money.’

In 14a the trajector-object *ta-men* (they) became *yi-ge ban* (a class) by means of grouping and in 14b the trajector-object *shang-pin* (product) became *huo-bi* (money) by means of exchanging. In this sense, the verbs of these two groups are also semantically compatible with the postverb *cheng* (become).

9.6.3 Resultative BA-construction with postverb *wei* (as)

The second postverb to be investigated is *wei* (as). It denotes the state that the changed entity is finally in. The resultative BA-construction with the postverb *wei* (as) conveys the message that someone causes the trajector-object entity to be in a resultative state. The verbs licensed into such resultative BA-construction are expected to be semantically compatible with this designated meaning.

After conducting the co-varying analysis with R software, the twenty most highly attracted verbs in the resultative BA-construction with *wei* (as) are yielded and ranked in Table 9.21.

Table 9.21 Co-varying analysis of the postverb *wei* (as)

NO	w1	(obs.w1_2.in_c/exp.w1_2.in_c)	coll.strength
1	<i>zuo</i> (do)	(712/282.91)	Inf
2	<i>cheng</i> (name)	(202/94.83)	48.154273
3	<i>shi</i> (see)	(109/49.6)	28.196871
4	<i>lie</i> (list)	(61/24.2)	24.774409
5	<i>fen</i> (divide)	(203/130.15)	16.606796
6	<i>ding</i> (define)	(34/13.49)	13.73623
7	<i>hun</i> (mix)	(30/11.9)	12.110813
8	<i>feng</i> (worship)	(16/6.75)	5.412781
9	<i>gai</i> (change)	(61/40.47)	4.588585
10	<i>huan</i> (change)	(30/16.66)	4.548567
11	<i>hua</i> (draw a line)	(15/7.94)	2.845066
12	<i>ju</i> (occupy)	(7/2.78)	2.813352
13	<i>rong</i> (melt)	(10/4.76)	2.587629
14	<i>giu</i> (classify)	(8/3.57)	2.449856
15	<i>ren</i> (regard)	(19/11.9)	2.135145
16	<i>cheng</i> (become)	(5/1.98)	2.008766
17	<i>chi</i> (criticise)	(5/1.98)	2.008766
18	<i>yu</i> (praise)	(5/1.98)	2.008766
19	<i>shi</i> (interpret)	(4/1.59)	1.606704
20	<i>yu</i>	(4/1.98)	1.073299
	(use metaphorically)		

For the convenience of discussion, these twenty verbs listed are put into five groups as listed in Table 9.22.

Table 9.22 Co-varying analysis of the postverb *wei* (as)

No	Semantic groups	verbs
1	changing	<i>gai</i> (change), <i>huan</i> (change), <i>rong</i> (melt), <i>cheng</i> (become)
2	creating	<i>hua</i> (draw), <i>zuo</i> (do), <i>hun</i> (mix), <i>lie</i> (list)
3	Perceiving	<i>shi</i> (see)
4	cognitive	<i>ding</i> (define), <i>gui</i> (classify), <i>ren</i> (regard), <i>feng</i> (worship)
5	Speech	<i>cheng</i> (name), <i>chi</i> (criticise), <i>yu</i> (praise), <i>shi</i> (interpret), <i>yu</i> (use metaphorically)
6	others	<i>fen</i> (divide), <i>ju</i> (occupy)

The first three groups had their similar counterparts in the resultative BA-constructions containing the postverb *cheng* (become). Although they include different individual verbs, these verbs also denote the meaning that the trajector-object is involved in a change and then is in a resultative state. Thus, all the verbs in these three groups at least are semantically compatible with the resultative BA-constructions. However, more changing verbs are included in the top-twenty list of the resultative BA-construction with *wei* (as) and fewer creating verbs are included in the list. Thus, this type of resultative BA-construction is inclined to attract more changing verbs and fewer creating verbs.

Furthermore, it is obvious that more cognitive verbs and speech verbs are included to denote the mental change in one's mind. The mental change of the entity under question is likely to be specified with the final state of this entity. Both Examples 15a and 15b, for instance, contain the postverb *wei* (as). Example 15a conveys the message that they named China 'silk nation'. Example 15b conveys the message that they took people as the tools.

15a *ta-men ba zhong-guo cheng wei 'si guo'*

They BA China name as silk nation

They named China 'silk nation'.

15b *ta-men...ba ren shi wei gong-ju*

They... BA people see as tool

‘They took people as the tools.’

In their mind, *zhong-guo* (China) is taken as *si-guo* (silk nation) (see 15a). In their mind, people are taken as the tools (see 15b). In both the cases, the resultative states are emphasised, instead of the process of the change. In this sense, the verbs are semantically compatible with the postverb *wei* (as).

The verb *fēn* (divide) in the last group is sure to be affecting verb since the divided entity is understood as an affected entity. This affecting verb serves as the pre-condition for the causative result designated by the postverb *wei* (as). The verb *ju* (occupy) of the same group also functions as a pre-condition for the resultative state. Example 16, for instance, conveys the message that someone occupied the land as his own property.

16 *ba di ju wei ji you*

BA land occupy as self possession

‘[Someone] occupied the land as his own property.’

As he occupied the land, the possibility is very high for him to own the property.

In all, through the co-varying collostructional analysis for the collostructional strength of the verbs-postverb *wei* (as) relation, I have observed that some verbs which are available for the general resultative BA-constructions do not appear in the list of the specific resultative BA-construction with *wei* (as). It has also be found that in comparison with the verbs co-occurring with the postverb *cheng* (become), the verbs co-occurring with the postverb *wei* (as) include much fewer verbs of physical change and more mental and speech verbs.

In sum, the resultative BA-constructions with *wei* (as) all carry the meaning that the potential change causes the BA-marked entity to be replaced by another entity. It makes sense that such change happens most highly in the speech process and the mental/metaphorical process, instead of the physical process. The reason is that tracing the process of the mental change has a smaller possibility than focusing on the resultative state of the affected or affected entity in one’s mind.

9.6.4 Resultative BA-construction with postverb *zuo* (as)

The postverb *zuo* (as) and the postverb *wei* (as) are semantically similar. Both designate only the final state or the new form resulted from a change process. It is worth reporting that there are only nineteen verbs attracted to the resultative BA-constructions with the postverb *zuo* (as) (see Table 9.23).

Table 9.23 Co-varying analysis of the postverbs *zuo*

NO	w1	(obs.w1_2.in_c/exp.w1_2.in_c)	coll.strength
1	<i>dang</i> (treat)	(437/134.12)	187.068853
2	<i>kan</i> (see)	(355/155.56)	75.40483
3	<i>bi</i> (compare)	(43/10.95)	22.208492
4	<i>jiao</i> (call)	(31/7.76)	16.598743
5	<i>yong</i> (use)	(6/1.37)	3.85641
6	<i>suan</i> (calculate)	(5/1.14)	3.212816
7	<i>ren</i> (regard)	(11/6.84)	1.219404
8	<i>chang</i> (sing)	(2/0.68)	0.87849
9	<i>cai</i> (pick)	(1/0.23)	0.641877
10	<i>chong</i> (fill)	(1/0.23)	0.641877
11	<i>huan</i> (call)	(1/0.23)	0.641877
12	<i>liu</i> (hold/save)	(1/0.23)	0.641877
13	<i>qu</i> (take)	(1/0.23)	0.641877
14	<i>tian</i> (add)	(1/0.23)	0.641877
15	<i>ying</i> (reflect)	(1/0.23)	0.641877
16	<i>zou</i> (crinkle)	(1/0.23)	0.641877
17	<i>du</i> (read aloud)	(2/1.14)	0.493428
18	<i>dui</i> (pile)	(1/0.46)	0.393393
19	<i>mai</i> (sell)	(2/1.37)	0.38356

These verbs can be put into six groups (see Table 9.24). The first two verb groups are very

similar to the first two verb groups co-occurring with the postverb *wei* (as). Both have the sound-uttering/speech verbs and mental verbs (see Table 9.24 and Table 9.18).

Table 9.24 Verb groups attracted to postverb *zuo* (as)

No	Semantic groups	verbs
1	sound-uttering	<i>jiao</i> (call), <i>huan</i> (call), <i>du</i> (read aloud), <i>chang</i> (sing)
2	cognitive	<i>dang</i> (treat), <i>ren</i> (recognise), <i>bi</i> (compare), <i>suan</i> (calculate),
3	perceiving	<i>kan</i> (see)
4	putting	<i>liu</i> (save/hold), <i>dui</i> (pile)
5	obtaining	<i>cai</i> (pick), <i>qu</i> (take)
6	others	<i>mai</i> (sell), <i>yong</i> (use), <i>chong</i> (fill), <i>tian</i> (add), <i>ying</i> (reflect), <i>zou</i> (crumble)

The sound-uttering verbs in the first group and the mental verbs in the second and third groups convey the message that in the speaker's mind, the trajector-object entity is taken as something else in the speech process or in the mental process designated by the verb. BA-sentences 17a, 17b and 17c, for example, contain the sound-uttering verb *jiao* (call), the cognitive verb *dang* (take-as) and the perceiving verb *kan* (see) respectively. Example 17a conveys the message that someone called this pen 'magic pen'; Example 17b conveys the message that someone took her as his mother; Example 17c conveys the message that someone viewed culture as a complicated whole.

17a *ba zhe-zhi bi jiao zuo 'shen bi'*
 BA this pen call as magic pen
 '[Someone] called this pen 'magic pen'.'

17b *ba ta dang zuo mu-qin*
 BA her take as mother
 '[Someone] took her as his mother.'

17c *ba wen-hua kan zuo yi-ge fu-za-de zheng-ti*
 BA culture look as one complicated whole
 ‘[Someone] viewed culture as a complicated whole.’

In 17a, *bi* (pen) is taken as *shen-bi* (magic pen) in the naming process; In 17b, *ta* (her) is taken as *mu-qin* (mother) in the cognitive process; In 17c, *wen-hua* (culture) is taken as *fu-za zheng-ti* (whole) in the thinking process.

The postverb *zuo* (as) can co-occur with some action verbs as illustrated in the last three groups. The verb actions all serve as the pre-condition for the resultative state designated by the postverb *zuo* (as). Example 18a, for instance, conveys the message that someone sold them as slaves. Example 18b conveys the message that someone piled up the rocks.

18a *ba ta-men mai zuo nu-li*
 BA they sell as slave
 ‘[Someone] sold them as slaves.’

18b *ba shi-tou dui zuo yi-dui*
 BA stones pile up as a heap
 ‘[Someone] piled up the rocks.’

In 18a, *ta-men* (they) is understood to be taken as *nu-li* (slave) in the selling process. In 18b, *shi-tou* (rock) is viewed to be changed into a pile in the piling process. In all, their conceptualisation makes it possible for these verbs to be semantically associated with the postverb *zuo* (as).

In addition, there is a long list of repulsive verb from the resultative BA-construction with the postverb *zuo* (as):

Table 9.25 Repulsive verbs to the resultative BA-construction with the postverb *zuo* (as)

NO	verb	obs.w1_2	coll.strength
1	<i>zuo</i> (function)	713	-88.886285
2	<i>bian</i> (change)	352	-32.017157

3	<i>fen</i> (separate)	328	-31.8325
4	<i>shuo</i> (say)	141	-16.156528
5	<i>lie</i> (list)	61	-6.914051
6	<i>gai</i> (change)	102	-6.21407
7	<i>hua</i> (change,melt)	42	-4.748345
8	<i>zuo</i> (do)	35	-3.953241
9	<i>ding</i> (define)	34	-3.839777
10	<i>hun</i> (mix)	30	-3.386224

In Table 9.25, listed the 10 most repulsive verb to the resultative BA-construction with the postverb *zuo* (as). I have found that these repulsive verbs can be mainly classified into two groups, physical change and attribute change, as illustrated in Table 9.26.

Table 9.26 Verb groups repulsive to the resultative BA-construction with the postverb *zuo* (as)

No	Semantic groups	verbs
1	physical change	<i>bian</i> (change), <i>gai</i> (change, revise), <i>hua</i> (melt, change), <i>hun</i> (mix)
2	attribute change	<i>fen</i> (separate), <i>lie</i> (list), <i>ding</i> (define), <i>hun</i> (mix)

From Table 9.26, the resultative BA-construction with the postverb *zuo* (as) can be said to have the tendency to be notorious with the verbs expressing the physical/attribute change.

Except for these seven verbs, *zuo*₁ (function), the most repulsive verb shares the same character with the postverb *zuo* (as). It is ungrammatical to have the verb and postverb share the same character in Chinese even though they differ in meaning. The eighth verb *zuo*₂ (do) is semantically odd to go with the *zuo* (as). The third one, *shuo* (say) is semantically odd to occur with the *zuo* (as), but it is the most attracted verb with the postverb *cheng* (becoming). The verb *shuo* (say) needs a postverb, expressing the change.

9.6.5 Discussion

Based on the collexeme analyses and the co-varying analyses, each of the top ten verbs attracted to the general and specific resultative BA-constructions are compared (see Table 9.27).

Table 9.27 Resultative BA-constructions compared

	general	<i>cheng</i> (become)	<i>wei</i> (as)	<i>zuo</i> (as)
1	<i>bian</i> (change)	<i>shuo</i> (tell)	<i>zuo</i> (do)	<i>dang</i> (take-as)
2	<i>cheng</i> (name)	<i>bian</i> (change)	<i>cheng</i> (name)	<i>kan</i> (see)
3	<i>dang</i> (take-as)	<i>xie</i> (write)	<i>shi</i> (see)	<i>bi</i> (compare)
4	<i>fen</i> (divide)	<i>jian</i> (build)	<i>lie</i> (list)	<i>jiao</i> (call)
5	<i>kan</i> (see)	<i>da</i> (hit)	<i>fen</i> (divide)	<i>yong</i> (use)
6	<i>zuo</i> (take-as)	<i>ban</i> (handle)	<i>ding</i> (define)	<i>suan</i> (calculate)
7	<i>jiao</i> (call)	<i>kan</i> (see)	<i>hun</i> (mix)	<i>ren</i> (recognise)
8	<i>nong</i> (do)	<i>huan</i> (change)	<i>feng</i> (worship)	<i>chang</i> (sing)
9	<i>shi</i> (see)	<i>zu</i> (group)	<i>gai</i> (change)	<i>cai</i> (pick)
10	<i>da</i> (beat)	<i>zao</i> (build)	<i>huan</i> (change)	<i>chong</i> (fill)

The first observation made in comparison with the four lists presented in Table 9.27 shows that each verb listed in the general resultative BA-construction in the first column does share some verbs with one of the three specific resultative BA-constructions. For example, the verb *bian* (change) is also found in the second column of the BA-construction with the postverb *cheng* (become). This sharing feature shows that the BA-constructions specified with these three postverbs are very frequent ones in the resultative BA-constructions in general.

The second interesting observation has been made is that the verbs designating physical actions, such as *xie* (write), *jian* (build) and *da* (hit) illustrated in the second column more frequently co-occur with the postverb *cheng* (become) than with other postverbs. Conversely, the verbs designating mental processes, such as *dang* (take-as), *kan* (see) and *ren* (recognise), co-occur more frequently with the postverb *zuo* (as) than with the postverb *cheng* (become). The behaviour of the postverb *wei* (as) is understood as something in between. The reason behind it is that it is possible to focus on a physical process and unlikely to do so on a mental process. In the latter case, the focus is likely to be put on the final mental state. It is natural to see the co-occurrence of the psychical action verb *jian* (build) with the postverb *cheng* (become) (see 19a). But it is not so if the verb *jian* (build) co-occurs with the postverb *wei* (as) or *zuo* (as) (see 19b).

19a *ba gu-xiang jian cheng yi-ge shang-mao zhong-xin*
 BA home-town build become a trade centre
 ‘[Someone] built his hometown into a trade centre.’

19b **ba gu-xiang jian wei/zuo yi-ge shang-mao zhong-xin*
 BA home-town build as a trade centre

For the same reason, the mental verb *shi* (see) can co-occur with the postverb *wei* (as) or *zuo* (as) (see 20a), but not with *cheng* (become) (see 20b).

20a *ba ta shi wei/zuo jing-zheng-dui-xiang*
 Ba he see as competitor
 ‘[Someone] took him as the competitor.’

20b **ba ta shi cheng jing-zheng-dui-xiang*
 Ba he see become competitor

In all, the semantic compatibility does exist between the verbs and the postverbs, such as *cheng* (become), *wei* (as) and *zuo* (as). Their co-occurring differences are also better accounted for semantically.

9.7 Caused-transfer BA-construction at two levels

The token frequency of the caused-transfer BA-construction in general, as discussed in Chapter Eight, is much smaller than that of the caused-motion BA-construction in general or that of the resultative BA-construction in general. In the collexeme analysis, the twenty most highly attracted verbs as ranked in Table 9.28.

Table 9.28 Collexeme analysis of caused-transfer BA-construction

No	Verbs	obs.freq	exp.freq	coll.strength
1	<i>jiao</i> (hand-in)	274	0.366593	Inf
2	<i>gei</i> (give)	131	1.242319	214.896
3	<i>song</i> (send)	102	0.643018	185.4894
4	<i>di</i> (hand-over)	66	0.088802	168.4488
5	<i>xian</i> (offer)	56	0.059657	150.078
6	<i>rang</i> (let)	41	0.603399	59.35612
7	<i>huan</i> (return)	30	0.19582	54.36463
8	<i>mai</i> (sell)	35	0.592925	48.63168
9	<i>chuan</i> (pass)	29	0.279613	47.55792
10	<i>liu</i> (keep/stay)	30	0.587005	39.91901
11	<i>fen</i> (distribute)	34	1.259168	35.88714
12	<i>ji</i> (post)	15	0.107929	26.89794
13	<i>sai</i> (stuff)	11	0.096544	18.94152
14	<i>jiao</i> (teach)	15	0.367959	18.8727
15	<i>jiang</i> (tell)	21	1.609367	16.1276
16	<i>tui</i> (push)	13	0.368415	15.64914
17	<i>jie</i> (borrow/lend)	13	0.383898	15.42117
18	<i>xu</i> (allow)	7	0.051915	12.80361
19	<i>reng</i> (throw)	8	0.115215	12.21576
20	<i>dai</i> (carry)	16	1.564738	10.89839

It is worthwhile to notice that most highly verbs illustrated in Table 9.28 are associated with the ‘cause-to-transfer’ meaning. These verbs include *jiao* (hand-in), *gei* (give), *song* (send), *di* (pass), *xian* (offer), *huan* (return), *mai* (sell), *chuan* (pass), *fen* (distribute), *ji* (post), *sai* (stuff), *jiao* (teach), *tui* (push), *jie* (borrow/lend) and *reng* (throw).

It is also noticeable that there are much fewer types of postverbs licensed in the caused-transfer BA-construction. It is very interesting that the three frequent postverbs – i.e. *gei*

(give), *yu₁* (to) and *yu₂* (to)⁸ – have a similar meaning. The two homophonic and synonymous *yu*-s are written as different characters. Unlike the postverbs occurring in the caused-motion BA-constructions and the resultative BA-constructions, their counterparts in the caused-transfer BA-constructions convey the unified meaning of ‘transferring something to someone’, although they have different registers. The postverb *gei* (give) is an informal verb, while the two *yu*-s are formal. Their different degree of formality, to some extent, imposes some constraint on their respective co-occurring verbs. Since the three postverbs carry a similar meaning, the differences between the attracted verb list of the general caused-transfer BA-construction and that of the caused-transfer BA-constructions with specific postverbs are much smaller. The following two sub-sections discuss each of the three postverbs and their most highly attracted co-occurring verbs.

9.7.1 Caused-transfer BA-construction with postverb *gei* (give)

The co-varying analysis is used to search for the attracted verbs co-occurring with the postverb *gei* (give) and yielded merely fifteen highly attracted fifteen verbs. They are ranked in Table 9.29.

Table 9.29 Co-varying analysis of the postverb *gei*

NO	w1	(obs.w1_2.in_c/exp.w1_2.in_c)	coll.strength
1	<i>jiao</i> (hand in)	(261/255.6)	2.294469
2	<i>di</i> (pass to)	(63/61.46)	0.699927
3	<i>xian</i> (sacrifice)	(55/53.66)	0.608281
4	<i>song</i> (send)	(89/87.8)	0.472272
5	<i>fen</i> (distribute)	(33/32.19)	0.360506
6	<i>liu</i> (save)	(30/29.27)	0.32719
7	<i>mai</i> (sell)	(30/29.27)	0.32719
8	<i>chuan</i> (pass on)	(28/27.32)	0.30504
9	<i>huan</i> (return)	(24/23.41)	0.260889
10	<i>jiang</i> (tell)	(21/20.49)	0.227902
11	<i>dai</i> (bring)	(16/15.61)	0.173166
12	<i>ji</i> (post)	(15/14.63)	0.162255

⁸ The three postverbs are understood to have the semantic property of “trace of transfer” labeled as (FP).

13	<i>jiao</i> (teach)	(15/14.63)	0.162255
14	<i>jie</i> (lend/rent)	(13/12.68)	0.140468
15	<i>tui</i> (push)	(13/12.68)	0.140468

In this list, the verbs can be put into three groups for the convenience of discussion (see Table 9.30).

Table 9.30 Verb groups attracted to the postverb *gei* (give)

No	group	verbs
1	Giving	<i>jiao</i> (hand in), <i>di</i> (pass to somebody), <i>xian</i> (sacrifice), <i>Song</i> (send), <i>fen</i> (distribute), <i>mai</i> (sell), <i>chuan</i> (pass on), <i>huan</i> (return), <i>ji</i> (post), <i>jie</i> (lend), <i>jiao</i> (teach), <i>jiang</i> (tell)
2	Moving	<i>tui</i> (push), <i>liu</i> (leave)
3	others	<i>dai</i> (carry)

Twelve verbs fall into the first giving group. Some of them have the meaning of giving some tangible entity; while others have the meaning of giving some knowledge or information, such as *jiao* (teach) and *jiang* (tell). In this sense, all these verbs are semantically compatible with the postverb *gei* (give). Example 21a conveys the message that someone sold the book to them; Example 21b conveys the message that someone taught the method to them; Example 21c conveys the message that someone told everyone his new experience of creating a character.

21a *ba shu mai gei le ta-men*

BA book sell give ASP them

‘[Someone] sold the book to them.’

21b *ba fang-fa jiao gei le ta-men*

BA method teach give ASP them

‘[Someone] taught the method to them.’

21c *ba zi-ji su-zao ren-wu de xin-de-ti-hui jiang gei da-jia*
 BA self create character POS experience tell give everyone
 ‘[Someone] told everyone his new experience of creating a character.’

The cause-to-move verbs *tui* (push) and *liu* (leave) can also co-occur with the postverb *gei* (give). Since a moving entity can both be understood as moving to a place or a person, all these four verbs are semantically compatible with the postverb *gei* (give). The verb *reng* (throw), for example, can occur both in the caused-transfer BA-construction (see 22a) and the caused-motion BA-construction (see 22b). Example 22a conveys the message that someone threw the ball to the teacher and Example 22b conveys the message that someone threw the ball into the basket.

22a *ba xiao-che tui gei lao-shi*
 BA cart push give teacher
 ‘[Someone] pushed the cart to the teacher.’

22b *ba xiao-che tui jin yuan-zi li*
 BA cart push enter yard inside
 ‘[Someone] pushed the cart into the yard.’

The verb *dai* (carry) does not carry any cause-to-transfer meaning. Instead, it has the semantic property of controlling. The person who controls an entity is ready to move it in various ways. In this sense, this semantic property makes these verbs to serve as a pre-condition for a possible transfer. Example 23, for instance, conveys the message that someone brought the pen to him.

23 *ba bi dai gei ta*
 BA pen carry give him
 ‘[Someone] brought the pen to him.’

In all, the similar two types of semantic compatibility are also found in this sub-type of the caused-transfer BA-construction. One is the direct semantic compatibility between the verb and the postverb *gei* (give). Both the giving verbs and the cause-to-move verbs are such types of verbs. The

other is the semantic compatibility via pre-condition. The verb *dai* (carry) has this semantic relation.

9.7.2 Caused-transfer BA-construction with postverb *yu₁* (to) and *yu₂* (to)

The two postverbs *yu-s* (to) are more formal than the postverb *gei* (give) and therefore, attract much fewer verbs. The two *yu-s*(to) have the same pronunciation and the same meaning. They differ in formality. The postverb *yu₁*⁹ (to) is more formal than the postverb *yu₂*¹⁰ (to). The former finds even fewer co-occurring verbs than the latter (see Table 9.31 and Table 9.32).

Table 9.31 Co-varying analysis of the postverb *yu₁*

NO	w1	(obs.w1_2.in_c/exp.w1_2.in_c)	coll.strength
1	<i>gei</i> (give)	(5/0.05)	10.686085
2	<i>fu</i> (endow)	(4/0.05)	7.715738

Table 9.32 Co-varying analysis of the postverb *yu₂*

NO	w1	(obs.w1_2.in_c/exp.w1_2.in_c)	coll.strength
1	<i>rang</i> (let)	(5/0.61)	3.73744
2	<i>zeng</i> (give a gift to)	(2/0.06)	2.916841
3	<i>shuo</i> (tell)	(2/0.18)	1.905096
4	<i>shou</i> (reward)	(1/0.01)	1.827923
5	<i>fu</i> (endow)	(1/0.07)	1.140965
6	<i>jiang</i> (award)	(1/0.09)	1.064774

I have also observed that some formal verbs which are not attracted to the postverb *gei* (give) are found to co-occur with *yu-s* in the caused-transfer BA-construction. These verbs include the formal verbs *fu* (endow), co-occurring with *yu₁* (to) (see Table 9.31) and the verbs *zeng* (give), *shou* (grant) and *jiang* (award), co-occur with *yu₂* (to) (see Table 9.32). The verb *gei* (give) can function both as

⁹ *yu₁* refers to 予

¹⁰ *yu₂* refers to 与

the main verb and the postverb. Since the main verb *gei* (give) is not allowed to co-occur with the postverb *gei* (give), this main verb is found to co-occur with the postverb *yu₁* (to) (see Table 9.31).

9.7.3 Discussion and summary

It was previously pointed out that the caused-transfer BA-constructions have a much smaller token frequency. Their co-occurring postverbs are also fewer than those in the caused-motion BA-construction and the resultative BA-construction. Based on the results of the collostructional analysis discussed in the previous three sub-sections, the following three generalisations are worth reporting.

Firstly, the verbs attracted to the different specific caused-transfer BA-constructions with different postverbs differ in number (see Table 9.33). The caused-transfer BA-constructions with the postverb *gei* (give) attract more verbs than the other two caused-transfer BA-constructions. It is expected that the informal postverb *gei* (give) attracts more verbs than the other formal *yu*'s (to) do.

Table 9.33 Caused-transfer BA-constructions compared

No	general	<i>gei</i> (give)	<i>yu₁</i> (to/give)	<i>yu₂</i> (to/give)
1	<i>jiao</i> (hand-in)	<i>jiao</i> (hand-in)	<i>gei</i> (give)	<i>rang</i> (let)
2	<i>gei</i> (give)	<i>di</i> (pass)	<i>fu</i> (endow)	<i>zeng</i> (give as gift)
3	<i>song</i> (send)	<i>xian</i> (offer)		<i>shuo</i> (speak)
4	<i>di</i> (hand-over)	<i>song</i> (send)		<i>shou</i> (reward)
5	<i>xian</i> (offer)	<i>fen</i> (distribute)		<i>fu</i> (endow)
6	<i>rang</i> (let)	<i>liu</i> (keep/stay)		<i>jiang</i> (reward)
7	<i>huan</i> (return)	<i>mai</i> (sell)		
8	<i>mai</i> (sell)	<i>chuan</i> (pass)		
9	<i>chuan</i> (pass)	<i>huan</i> (return)		
10	<i>liu</i> (keep/stay)	<i>jiang</i> (talk)		

Secondly, the ten most highly attracted verbs co-occurring with the postverb *gei* (give) and those occurring in the general caused-transfer BA-constructions are very similar. Seven out ten verbs occurring in the general caused-transfer BA-constructions are also found in the constructions containing the postverb *gei* (give) (see Table 9.33). The similarity between the two columns shows

that the ten verbs attracted to the caused-transfer BA-construction with *gei* (give) have very big collostructional strength even among all the caused-transfer BA-constructions.

Thirdly, there are also two types of semantic compatibility between the verbs and their co-occurring postverbs. In the first case, the semantic compatibility can be direct and the verb and the postverb have similar semantic property. In the second case, the verb denoting the meaning of the pre-condition for the caused-transfer, which is designated by the co-occurring postverb. However, the second type of semantic compatibility is rare in the case of the postverb *gei* (give) and is even not possible in the cases of *yu*₁ and *yu*₂. Thus, formal expressions are more semantically constrained.

Up to this point of discussion, four important generalisations covering the explicit BA-constructions can be stated. Firstly, verbs and postverbs in all the explicit BA-constructions demonstrate degrees of semantic compatibility. Secondly, their semantic compatibility reveals at least two types—i.e. direct compatibility and compatibility via pre-condition. Thirdly, the three different types of explicit BA-constructions attract different groups of verbs. Fourthly, the explicit BA-constructions at two different levels (i.e., the general level and the level with the specific postverb) attract different groups of verbs. These Four important generalisations all support my claim that Chinese BA-constructions are better organised as a family. The verb-construction semantic compatibility can be better accounted for in different types of BA-constructions at various levels.

Furthermore, they indicate that verb-construction collostructional relations are better accounted for at the level with specific postverbs.

9.8 Element-trajector variants

In the previous sections, I adopted the collostructional analysis to explore the semantic compatibility between the verbs and the explicit BA-constructions at two levels. The focus of these analyses is put on the semantic relations between one particular construction with various verbs and their possible distributions. In this section, the analyses will be carried out on the possible relations between one verb and its various BA-constructions. There are many verbs which should be investigated in the semantic relations and distributions to understand the ways these verbs are used in Chinese BA-sentences.

As discussed in Chapter Seven, a group of BA-constructions can be understood as construing

variants of the same CEF. These various BA-constructions have different trajectors realised as the grammatical object or BA-marked noun phrase. In other words, a CEF can be construed as various BA-constructions with different trajector-objects. The verbs licensed in these cases are not equally distributed in these BA-constructions. It is always the case that a verb is inclined to be more attracted to one of these various BA-constructions than the others. The wrapping CEF, for instance, is construed at least as two different BA-constructions with the same verb but different trajector-objects (see 24a and 24b). Both the exemplified BA-sentences convey the message that someone wrapped up the head with a towel.

24a *ba mao-jin bao zai tou shang*

BA towel wrap at head up

‘[Someone] wrapped the towel around the head.’

24b *ba tou bao shang mao-jin*

BA head wrap up towel

‘[Someone] wrapped the head with towel.’

The wrapping CEF contains wrapper, wrap (*mao-jin* (towel)) and wrapped (*tou* (head)). In a more general representation, the wrap is understood as the material used to wrap up an object, while the wrapped is understood as the object to be wrapped up. Such conceptual content can be construed as different BA-constructions with different trajector-objects. The trajector-object in 24a, for instance, is the wrap *mao-jin* (towel) and that in 24b is the wrapped *tou* (head). That is, either the wrap or the wrapped is possible to be selected as the trajector-object. If a CEF can be construed in more than one BA-construction, then, what are such BA-constructions? Which elements can be selected as their respective trajector-object? Which element is more likely to be thus selected?

As illustrated in 24a and 24b above, the wrapping CEF can be construed either as a caused-motion BA-construction (see 24a) or as a resultative BA-construction (see 24b). The windowed and profiled frame elements, such as the wrap and the wrapped in the wrapping CEF, can be construed either as the theme (i.e., the entity involved in motion, see 24a) or as the patient (i.e., the entity involved in a change of state, see 24b).

The construing patterns can be more complicated than these demonstrated above. Let us take

another wrapping verb *guo* (wrap) as example. The wrapping CEF with the specific verb *guo* (wrap) can be construed as the following three BA-constructions (see 25a-c). All of them convey the message that someone wrapped something (wrapped) with some material (wrap). However, this conceptual content is construed differently (see 25a-c). Example 25a conveys the message that someone wrapped the momordica seeds with the pancake. Example 25b conveys the message that people wrapped the overcoats and duvets around their bodies. Example 25c conveys the message that someone wrapped the overcoat tightly.

25a *ba mu-bie-zi guo zhe da-bing* (CNC)
 BA momordica seeds wrap ASP pancake
 ‘[Someone] wrapped the momordica seeds with the pancake.’
 (wrapped-patient)

25b *da-jia ba da-yi mian-bei guo zai ta-men shen shang*
 People BA overcoats duvet wrap on they body up
 ‘People wrapped the overcoats and duvets around their bodies’.
 (wrap-theme) (CNC)

25c *ba da-yi guo jing* (CNC)
 BA overcoat wrap tightly
 ‘[Someone] wrapped the overcoat tightly (around something).’
 (wrap-patient)

In the first BA-construction, the CEF element wrapped is chosen as the trajector-object (see 25a); while in the last two BA-constructions, the wrap is chosen as the trajector-object (see 25b and 25c).

To make the construing patterns more complicated, the wrapped-trajector is construed as the patient (see 25a) in a resultative BA-construction; while the wrap-trajectors are construed either as the theme (see 25b) in a caused-motion BA-construction or as the patient (see 25c) in a resultative BA-construction. These complicated interrelations can be summarised in Table 9.34.

Table 9.34 Types of trajectors

element	theme	patient
wrapped		wrapped-patient
wrap	wrap-theme	wrap-patient

The three different construing patterns illustrated in Table 9.34 can be accounted for as follows. In the wrapped-patient construing pattern (see 25a), the wrapped *mu-bie-zi* (momordica seeds) is understood as the patient which is involved in a change of state. That is, it is wrapped up by the wrap material *da-bing* (pancake). The frame element wrap can be construed either as a theme or as a patient. The wrap *da-yi mian-bei* (overcoat and quilt) in 25b can be understood as the moving theme in a caused-motion BA-construction. The wrap *da-yi* (overcoat) in 25c is construed as the patient in a resultative BA-construction.

I contend that the element-trajector construing patterns are constrained by the type of CEF and the specific verbs evoking the CEF. The wrapping CEF with the verb *guo* (wrap) as illustrated in 25a-25c, for instance, allows at least three types of BA-constructions with three types of interrelations between the two frame elements (i.e. wrap and wrapped) of the wrapping CEF and the two arguments – i.e. the theme in the caused-motion BA-construction and the patient resultative BA-construction.

In order to offer a general account of the element-trajector variants, I rename the two CEF elements wrap and wrapped discussed previously as material (M in short) and object (O in short) respectively. M refers to the material used for the agent to act upon the object with. For instance, the wrap is considered as the material (M) with which the wrapped or object (O) is wrapped. O refers to the object which is acted upon with M. Along this line of thought, Table 9.34 can be generalised as Table 9.35.

Table 9.35 Construing patterns of element-trajectors

element	theme	patient
O (wrapped)		O-patient (O-Pt, see 25a)
M (wrap)	M-theme (M-Th, see 25b)	M-patient (M-Pt, see 25c)

A CEF can be construed as different BA-constructions with each one having its own trajector-object. In some cases, the same type of the construing BA-constructions, such as the resultative BA-construction, can have different element-trajector patterns. The wrapping CEF, as illustrated in Examples 25a-c, can have two different BA-constructions – i.e. the caused-motion BA-construction and the resultative BA-construction. The resultative BA-construction can have two variants with different CEF frame elements chosen as the trajector-object (see 25a and 25c). The resultative BA-construction illustrated in 25a chooses O as the trajector-object, the one illustrated in 25c chooses M as the trajector-object (see Table 9.35).

As a CEF being construed in different BA-constructions with different element-trajectors, then a question arises. Which element-trajector construing pattern is a verb in question most highly attracted to? In other words, which trajector-object type mostly co-occurs with a verb in question?

In my manual exploration of the collected data, I have found six verbs with similar construing patterns. These verbs are *guo* (wrap), *gai* (cover), *zhao* (cover), *tian* (fill), *zhuang* (load) and *sai* (stuff). All of them are associated with the CEF that can be construed as three similar BA-constructions with three different element-trajectors (see Table 9.35). In other words, these verbs are found to be licensed in the BA-constructions with three different types of element-trajectors – i.e. the resultative BA-construction with O-Pt trajector-object, the caused-motion BA-construction with M-Th trajector-object and the caused-motion BA-construction with M-Pt trajector-object (see Table 9.36).

Table 9.36 Construing patterns of element-trajectors

verb	M	O	M
	theme	patient	
<i>guo</i> (wrap)	wrap	wrapped	wrap
<i>gai</i> (cover)	cover	covered	cover
<i>zhao</i> (cover)	cover	covered	cover
<i>tian</i> (fill)	filler	filled	filler
<i>zhuang</i> (load)	load.material	loaded	load.material
<i>sai</i> (stuff)	stuff.material	stuffed	stuff.material

In the case of the last verb *sai* (stuff), for example, the stuffing CEF evoked by the verb can be construed as three particular BA-constructions – i.e. one caused-motion and two resultative BA-constructions. In the caused-motion BA-construction, the M element *stuff.material* is fused with the theme and chosen as the trajector-object. In the resultative BA-construction with the O-trajector, the O element *stuffed* (or *stuffed entity*) is fused with the patient. In the resultative BA-construction with the M-trajector, the M element *stuff.material* is fused with the patient. These three BA-constructions can be illustrated in 26a, 26b and 26c. In the three BA-sentences, *ta-men* (they) functions as *stuff.person*; *mian-hua* (cotton) functions as *stuff.material M*; *er-duo* (ear) functions as *stuffed O*. Example 26a conveys the message that they stuffed the cotton into the ear; Example 26b conveys the message that they stuffed the ear with cotton; Example 26c conveys the message that they stuffed the cotton tight.

26a *ta-men ba mian-hua sai jin er-duo li*
 They BA cotton stuff enter ear inside
 ‘They stuffed the cotton into the ear.’

26b *ta-men ba er-duo sai man mian-hua*
 They BA ear stuff full cotton
 ‘They stuffed the ear with cotton.’

26c *ta-men ba mian-hua sai jing*
 They BA cotton stuff tight
 ‘They stuffed the cotton tight.’

Although the six verbs are all licensed in the BA-constructions with the three types of element-trajectors, different verbs are most highly attracted to different BA-construction types. These six verbs have different distributions. To investigate their distributions, I submitted the data of the three types of BA-constructions with the six verbs to the R software and ran the multiple distinctive collexeme analysis to yield the type of element-trajector that a particular verb is inclined to co-occur with. The analysis has yielded their respective element-trajector selection tendency as

illustrated in Table 9.37.

Table 9.37 Multiple distinctive collexeme analysis of element-trajectors

Verb	O-pt	M-pt	M-th ¹¹	pbin_O-pt	pbin_M-pt	pbin_M-th ¹²
<i>guo</i> (wrap)	12	5	1	4.416086	2.62732	-8.664489
<i>gai</i> (cover)	22	6	15	4.909438	1.531763	-6.872805
<i>zhao</i> (cover)	5	1	3	1.616216	0.398944	-1.866439
<i>tian</i> (fill)	12	1	32	0.650363	-0.547211	-0.381587
<i>zhuang</i> (load)	6	1	88	-4.134071	-1.519717	5.673685
<i>sai</i> (stuff)	8	3	88	-3.356469	-0.699329	3.851425

It is also worth noticing that the token frequency count of some BA-constructions, as illustrated in Table 9.37, is fairly small. Even so, they still truly reflect native speakers' intuition. No such BA-constructions will firstly emerge when the BA-construction with the verb in question is called for. It is also expected that more token frequency count might be expected in a much larger corpus. Yet, up till now, CNC corpus is unfortunately the most adequate corpus available for the analysis.

As Table 9.37 illustrates, each of the six verbs is given the p-value in the respective element-trajector type. The biggest p-value indicates the BA-construction variant to which the verb in question is most highly attracted. For instance, the verb *guo* (wrap), as illustrated in Table 9.37, has the biggest count (4.416086) and therefore, the verb is most highly attracted to the resultative BA-construction with O-Pt trajector-object.

Based upon the careful observation of the result yielded and illustrated in Table 9.37, I have found only two types of element-trajector that the six verbs are most highly attracted to. They are O-pt element-trajector and M-th element-trajector (see Table 9.38). That is, the most highly attracting types of BA-constructions are the resultative BA-construction with O-pt trajector-object and the caused-motion BA-construction with M-th trajector-object. Such correspondence between verbs and trajector-object types is well illustrated in Table 9.38.

¹¹ The O-Pt, M-Pt and M-Th columns designate the words/constructions to be contrasted and their observed co-occurrence frequencies.

¹² The pbin_O-Pt, pbin_M-Pt and pbin_M-Th columns are the log-transformed p-values of the words/constructions to be contrasted (+ = attraction, - = repulsion).

Table 9.38 Verb groups attracted to trajector-object variants

Trajector	type verbs
O-Pt	<i>guo</i> (wrap), <i>gai</i> (cover), <i>zhao</i> (cover), <i>tian</i> (fill)
M-Th	<i>sai</i> (stuff), <i>zhuang</i> (load)

It is worthwhile to point out that the results yielded in the multiple distinctive collexeme analysis (see Table 9.38) reflect some natural intuition. It is indeed natural for M to be fused with the theme in a caused-motion BA-construction. It is equally natural for O to be fused with the patient in a resultative BA-construction. In the case of the covering CEF, for instance, it is natural for the element cover to be fused with the theme in the caused-motion BA-construction (see 27a) and it is also natural for the element cover to be fused with the patient in the resultative BA-construction (see 27b). Example 27a conveys the message that someone covered cloth over her whole face; Example 27b conveys the message that someone covered up all her face with a cloth.

27a *ba bu gai zai ta-de zheng-ge lian shang* [M-th]
 BA cloth cover on her whole face up
 ‘[Someone] covered a cloth over her whole face.’

27b *ba ta-de zheng-ge lian dou gai shang bu* [O-pt]
 BA her whole face all cover up cloth
 ‘[Someone] covered up all her face with a cloth.’

In 27a, the element M *bu* (cloth) is fused with the theme and then chosen as the trajector-object of the caused-motion BA-construction. In 27b, the element O *lian* (face) is fused with the patient and chosen as the trajector-object of the resultative BA-construction.

In sum, element-trajector variants can be more adequately accounted for as a part of construing patterns. In such a construing model, I have found three types construing patterns with three different element-trajector variants. Out of the three variants, only two enjoy strong collostructional strength.

The multiple distinctive collexeme analysis used reveals that the selection of element-trajector

variants is determined by the CEF and the verbs associated with the CEF. Besides, two construing patterns have emerged as more frequently used ones, although three patterns are possible. These two patterns are found to better reflect intuition. The multiple distinctive collexeme analysis also indicates the natural and intuitive tendency that if the frame element O is chosen as the trajector, it is inclined to be fused with the patient in a resultative BA-construction. If the frame element M is chosen as the trajector, it has a greater possibility to be fused with the theme in a caused-motion BA-construction.

9.9 Discussion and summary

Up to this point of the collostructional analyses, the rich results yielded have persistently supported the claims that BA-constructions of various types at different levels attract different groups of verbs. The different distributions of verbs, therefore, serve as a very strong and cogent evidence for the various possible members of the BA-construction family at various specific levels. This area of the new discoveries can be further summarised as follows.

I have discovered that the groups of verbs most highly attracted to the V-LE BA-construction and those most highly attracted to the explicit BA-construction are different. In other words, these two types of BA-constructions at the level of Z-XP option attract different groups of verbs. The verbs attracted to the implicit V-LE BA-construction are much constrained and they are required to have the ‘effecting force’ which is strong enough to help the V-LE BA-construction to have some causation implication; while the latter ones are not necessary, because the postverbals or the preverbals in the explicit BA-construction can explicitly express the causative result or outcome.

The second group of findings are made at the level of the three basic types of the explicit BA-constructions – i.e. the caused-motion BA-constructions, the resultative BA-constructions and the caused-transfer BA-constructions. The results yielded in the collexeme analyses of the three basic types have revealed that different basic types of the explicit BA-constructions strongly attract different verbs (see Table 9.9 Table 9.17 and Table 9.28).

The third group of findings are made at a more specific level. At this level, each of the three basic BA-constructions is further specified with different transitive postverbs (or prepositions). It has been discovered that the verbs most highly attracted to the specific BA-constructions with different transitive postverbs (or prepositions) are also different. Since all the transitive postverbs selected for the study occur merely in one type of specific BA-construction, such postverbs serve to

determine the type of the BA-construction that the BA-sentence in question belongs to.¹³ The persistent correspondence between the postverbs and their co-occurring verbs, then, has shown that the specific BA-constructions with different transitive postverbs also strongly attract different verbs.

The persistent correspondence between verbs and postverbs is understood as their semantic compatibility. Furthermore, the results yielded in various collostructional analyses have clearly indicated that there exist two types of semantic compatibility between the main verb and the postverb or preposition in the explicit BA-constructions. Firstly, both the verb and the postverb (or preposition) bear the same semantic property. Secondly, the verb serves as the pre-condition for the meaning designated by the co-occurring postverb or preposition. Both the semantic compatibility patterns help make a possible coherent referent situation. In all, different distributions of the postverbs (or prepositions) and their co-occurring verbs proves that Chinese BA-construction are better examined and accounted for as a family of variants.

The same conceptual content can be construed as different constructions (Lagnacker 2008). Such conceptual content can indeed, as I contended in Chapter Six, be accounted for as a CEF. A CEF, modelling our rich encyclopaedic knowledge, can be construed into many sub-types of BA-constructions with different profiling/cognitive saliency. It has been discovered that a CEF can be construed as different BA-constructions with different element-trajectors positioned at the lower level of BA-construction network. Furthermore, the results yielded in the distinctive collexeme analysis have shown that different verbs are inclined to occur in different types of BA-constructions with different element-trajectors. This discovery adequately reflects intuition.

In all, the collostructional analyses have led to a very substantial support for the statement that BA-constructions of various types and at various levels attract different groups of verbs. They have also provided the strong support for the distributions of various BA-constructions being construed from the same expanded CEF. To adequately account for the BA-constructions and their distributions, therefore, it is very necessary to recognise the existence of various types of BA-constructions and the adequate organisation of these variants into a family. The discoveries, thus, convincingly support the statement that Chinese BA-construction is a family of constructions. What the network I have been building has proven to be a very helpful mechanism for theoretically accounting for the linguistic knowledge concerning the usage of distributions of verbs and their

¹³ Most transitive postverbs occur in only one type of the three basic BA-constructions.

various BA-constructions.

10 Conclusion

This thesis has focused on the study of Chinese BA-constructions. Based on the observation of the data, Chinese BA-constructions vary both in their syntactic structures and semantic structures. First of all, two major types have importantly come to our focus of study. They are the explicit BA-constructions and the implicit BA-constructions. Both the types have their own respective syntactic structures and semantic structures and both can be further divided. It is impossible, therefore, to describe such constructions with rich variations as a single unitary construction. Instead, Chinese BA-constructions are adequately described as a complicated family. Rich as it is, the BA-constructions have been studied in this thesis through their respective internal structures as well as the interrelations among various sub-types. In both areas, the relations between verb semantics and constructional semantics are the major concern. Along with this line of argumentation, some insights into Chinese BA-constructions are summarised in the following sub-sections.

As far as the relation between the verb semantics and the constructional semantics is concerned, I have argued that Chinese BA-constructions are categorised into four types. They are matched BA-construction, mismatch BA-construction, unmatched BA-construction and verbless BA-construction. The latter two, which have no English counterparts, have brought some difficulties to many theoretical frameworks. Nor can any theoretical models offer adequate solutions to these two types of problem BA-constructions. I have developed a new cognitive event frame (CEF in short) based on other related theoretical frameworks. Thus, Before summarising the main findings in the research of the CEF, it is worthwhile to report briefly the advantages and problems of the other related frameworks.

10.1 Related frameworks

The relevant theoretical approaches and frameworks, based on which the CEF has been developed, include mainly the disposal view of study (Wang 1954), the transitivity analyses (Thompson 1973; Li, Y. 1974; Hopper and Thompson, 1980; Wang, M. 1987; Sybesma 1992), the force-dynamics models (Talmy 1988a, 2000; Jackendoff 1990, 2002), the fusion model of the argument structure construction grammar (Goldberg 1995, 2006), the frame semantics

(Fillmore 1977a, 1982, 1985a) and the event frame with its windowing-gapping organisations (Talmy 2000).

(1) Disposal view and transitivity analysis. The disposal view of BA-construction is a very influential view proposed by Wang (1954). In his view, BA-construction denotes a “disposal” meaning. This view offers a good account of many BA-constructions, while some others do not have any possible “disposal” interpretation.

The various transitivity analyses mainly focus their study on the causative nature of the BA-construction. Researchers working with this type of framework include Thompson (1973), Sybesma (1992) and others. They take BA-construction as a causative construction and its grammatical object as an affected entity. It is true that at least many explicit BA-constructions, as I have argued, can be analysed as a construction of causation. However, its grammatical object is not always understood as an affected entity. Another problem that the transitivity analysis is confronted with is that in the implicit BA-constructions the causation is merely implied. There is no explicit expression of the causative result in these implicit BA-constructions either. The transitivity analysis also has some problem in treating the BA-constructions of fictive causation as well.

As far as the analysis of Chinese BA-constructions is concerned, the following four frameworks offer a better account of at least some BA-constructions. The frameworks include the force-dynamic patterns, the fusion model of the construction grammar, the semantic frame and the event frame with the windowing-gapping organisation. I will summarise my findings in the study of these four theoretical frameworks against Chinese BA-constructions.

(2) Force-dynamic frameworks. In comparison with the transitivity analysis, Talmy’s force-dynamic model and Jackendoff’s two-tier model offer more detailed semantic descriptions. Their accounts offer a much wider coverage of causation types and are more general as theoretical models. These force-dynamic models are applicable to many explicit BA-constructions.

Based on Talmy’s (1988a, 2000) force-dynamics theory, Jackendoff (1990) establishes a two-tier model to account for the conceptual structures of causation. Jackendoff’s two-tier

model, I have found, can well account for the BA-constructions containing various intransitive verbs, to which other theoretical frameworks are inapplicable. In this sense, the force-dynamic patterns, together with the binding patterns, have larger coverage in accounting for Chinese explicit BA-constructions. They are more general as a formal representation.

Although both the force-dynamic models can cover many Chinese BA-constructions, there are still some remaining problems. As I have argued, neither of the models can adequately account for some alternating BA-constructions with different trajector-objects. Nor can they properly handle the unmatched BA-constructions and the verbless BA-constructions.

(3) Fusion model. Goldberg (1995) claims that the sentence meaning is formed via the integration of the verb meaning into the constructional meaning. By integration, it is meant that the participant roles of a verb are fused with the argument roles of its construction if the former is semantically compatible with the latter. In such a fusion model, the verb meaning is viewed as encyclopaedic knowledge and formally represented as a semantic array of participants. Goldberg's fusion model offers a better account of many mismatch BA-sentences, including those in the three basic types of the explicit Chinese BA-constructions — i.e. the caused-motion BA-construction, the resultative BA-construction and the caused-transfer BA-construction.

The fusion model, although descriptively powerful as it is, has been found to be facing difficulties when confronted with the unmatched and verbless Chinese BA-constructions. Nor can it be used to account for various choices of the agonist in some alternating BA-constructions. The reason behind its failure is that the formal representation of the verb semantics is not large enough to cover the encyclopaedic knowledge necessary for the unmatched BA-constructions or the verbless BA-constructions. Nor is it large enough for all the possible choices of the agonist in alternating BA-constructions.

(4) Semantic frame. Semantic frames proposed by Fillmore (Fillmore 1977a, 1982, 1985a) offer much help in analysing BA-constructions. Generally speaking, both the semantic frames by Fillmore (1987) and the domains/bases by Langaker (1987, 2008) represent the rich

encyclopaedic knowledge indispensable for understanding linguistic expressions. What concerns this study is the background knowledge necessary for understanding sentences, but not for understanding verbs.

With such a theoretical framework, Boas (2002b, 2003b) even puts forward a verb polysemy view to solve some descriptive problems which Goldberg has in her analysis. However, I have argued that Boas's (2002b, 2003b) polysemy view of the verb within a frame approach does not work at least with Chinese unmatched and verbless BA-constructions.

(5) Event frame. The event frame proposed by Talmy (2000) in his cognitive semantics study is a unique version of the semantic frame. Talmy emphasises that the event frame serves to account for the coherent referent scene. He takes an attention view in which his event frame includes both windowed and gapped conceptual elements. With the gapped conceptual elements, his event frame is more richly represented as a complex of sub-events. Unfortunately, his event frame excludes the “peripheral” conceptual elements, such as the locale where the event happens and the time when the event happens. Without these peripheral elements, his event frame fails to account for some unmatched BA-constructions as well as the verbless BA-constructions. Without the peripheral elements, some choices of the trajector-objects are impossible either.

10.2 Cognitive event frame

To search solutions to these remaining problems, I have been arguing for a new cognitive event frame (CEF in short). In this section, I summarise its important features as well as the advantages of this new framework in its application to the remaining problems to which other related theoretical frameworks are proved to be inapplicable.

(1) Features. Just like other versions of the semantic frame, the CEF is a formal representation of the encyclopaedic knowledge served as the background knowledge necessary for linguistic units. However, the CEF differs from others in the aspect that the background knowledge it represents is for understanding SENTENCES. What cannot be over-emphasised is that the background knowledge must have the coverage bigger enough for

understanding SENTENCES, instead of verbs. Furthermore, this background knowledge of sentences must be coherent.

In such a new CEF, there are three very important features worth reporting. First, the coherent CEF allows gapped conceptual elements. Second, the coherent CEF also allows an extended verb sub-event including peripheral elements. Third, the coherent CEF consists of a complex of sub-events coherently related each other.

In all, the new CEF can be formally represented as a complex of coherently related sub-events. The sub-events include both the windowed elements and the gapped elements. Its verb sub-event includes both the core elements and the peripheral elements. Such coherent sub-events can function to associate the verb meaning with the constructional meaning via the mediating gapped sub-event(s) and elements in the case of the unmatched BA-constructions and the verbless BA-constructions.

Along with such an expanded CEF, the force-dynamics theory can be also be further revised so that all the frame elements, core or peripheral, are involved in some interaction. In this expanded scope, all the elements of the CEF have the potential of being profiled and construed as the element with the stronger force and then as the trajector-object. This expanded coverage of the force-dynamic view is applicable to all the possible BA-constructions.

(2) Advantages. In this thesis, I have demonstrated with substantial evidence that the CEF offers an adequate account of all the four types, including the unmatched and verbless BA-constructions. In other words, the CEF can help solve the remaining problems concerning these two types of BA-constructions to which other related models are inapplicable.

Based on the discussions carried out in Chapters Two-Six, I come to the two conclusive statements. First, any theoretical model is sure to be inapplicable to these problem BA-constructions if the model contains only the windowed elements. This statement indicates that Talmy's (2000) windowing-gapping organisations are indispensable for these problem BA-constructions. Without these organisations, the model will not be able to adequately account for these problem BA-constructions. Second, any theoretical model heavily relying upon the narrow semantic array of verb event will fail to account for at the least these two

problem BA-constructions. Lexicalist approaches (Levin 1985; Chomsky 1986; Carter 1988; Levin & Rapoport 1988; Rappaport & Levin 1988; Pinker 1989; Gropen et al. 1989) rely too heavily on the verb semantics to be able to account for the unmatched and verbless BA-sentences. To be more specific, the unmatched BA-constructions and the verbless BA-constructions cannot be derived from the verb meaning. Even some of the constructionist approaches have been proved to be inapplicable to these BA-constructions since their approaches rely too heavily on the verb semantics while claiming the independent status of construction.

The CEF's I have proposed, however, contain both the gapped concepts and the extended verb event. They consist of the gapped sub-events which mediate between the verb meaning and the constructional meaning in both the unmatched BA-constructions and the verbless constructions. The CEFs also include the "peripheral" frame elements, which can even be profiled and be realised as the BA-marked grammatical object. With these two important features, the expanded CEF's are also applicable to the force-dynamic BA-constructions with various trajector-objects.

Furthermore, I have proved that the CEF offers a better account of some ambiguous BA-sentences, which are neither structurally ambiguous nor lexically ambiguous. The CEF even helps formally define and account for the new notion 'fictive causation'.

In all, the CEF that I have proposed in this thesis has offered the solutions to the problems arising from the analysis of various problem BA-constructions. They include the unmatched BA-constructions, the verbless BA-constructions, the ambiguous BA-constructions, the BA-constructions with fictive construction, the BA-constructions with various trajector-objects and the implicit BA-constructions.

With all these major findings, I come up to the conclusion that all these cases of BA-constructions serve as strong evidence for my argument that to solve these problems, the larger scope of encyclopaedic knowledge of sentence including the gapped conceptual elements and the extended verb sub-event are indispensable. The CEFs that I have proposed represent such expanded encyclopaedic knowledge of sentence.

10.3 Family of BA-constructions

The second important claim I have proved with substantial statistical data is that Chinese BA-constructions can adequately be accounted for merely as a family with some members are more typical than others. With these member BA-constructions recognised, it is possible to claim that different BA-construction variants most highly attract different verbs. Although the co-occurrence of the most highly attracted verbs and their BA-constructions varies along with different BA-construction types, the verbs and their BA-constructions are all semantically compatible.

The evidence has strongly supported the observation that Chinese BA-constructions vary greatly, both in the aspect of syntax and in the aspect semantics. I have argued that these BA-construction variants are adequately described only as a family with various member constructions, instead of a uniformed construction. Although BA-constructions can be generalised as the form-meaning pairings illustrated in Structure 1 below, this generalised BA-construction can only be represented with some optional components.

1	Semantics	(X)	Y	(Z)
	Syntax	(NP ₁ /minor-clause) – BA-NP ₂ — (V) —	(XP)	

It is important to notice that two out of the three components are optional, without even considering the optional predicate verb. My analysis has shown that the optional Z-XP component is the most important one of all. Such a “general” BA-construction with optional components expects further specified variations, particularly the variations concerning the Z-XP component. That is one of the important reasons that Chinese BA-constructions are better analysed as a family.

I have found that various members of the BA-construction family can be better accounted for at different levels of specificity. The four optional components also have to be discussed at various levels. The most complicated optional Z-XP component, for instance, has to be analysed at the level below the optional predicate verb because the explicit BA-constructions always require an overt predicate verb. Also both the explicit BA-construction with Z-XP and the implicit BA-construction without Z-XP can be further

specified at a lower level.

With the observation of the four optional components and the level of specificity, I have proposed the option principle which states that the BA-construction with the optional component overtly expressed is more frequent and then more typical than the one of the same level without the expressed optional component. This option principle is also found to be level-sensitive. The higher-level option has the priority in consideration.

This option principle correctly predicts that the BA-construction with an overt predicate verb is more frequent and typical than the one without it. The principle also correctly predicts that the explicit BA-construction with the overt Z-XP is more frequent and typical than the implicit BA-construction without the optional Z-XP. This option principle even further predicts that the explicit BA-construction with a transitive postverbal is more frequent and typical than the one with an intransitive postverbal, which contains no NP after the postverb.

With the substantial support from the statistical data, I have found that the caused-motion BA-construction is the most frequent basic BA-construction, while the caused-transfer BA-construction is the least frequent basic BA-construction. I have also found the transitive postverbs in the caused-motion BA-construction enjoy the highest type-frequency, while the transitive postverbs in the caused-transfer BA-construction have the lowest type-frequency.

Based on this group of findings concerning the usage distributions, I am rightfully come to the conclusion that the typical BA-construction is the caused-motion BA-construction with a transitive postverb. The typical BA-construction, thus, denotes the meaning that X causes Y to be involved in a change of location leading to a specific destination.

With the network of BA-construction family and the option principle at hand, we have obtained another group of interesting findings concerning the verb-construction relations at various levels. First, I have found that the less specific V-LE BA-construction with fewer token-frequency attract much fewer types of verbs. I have also observed that the verbs licensed in the V-LE BA-construction are constrained and they should have the affecting force strong enough to help the V-LE BA-construction to have the 'change' implication; while the main verbs in the explicit BA-constructions are not required so because their co-occurring postverbals (or preverbals) Z-XP can explicitly express the change and even the causative result/outcome.

The study of the mostly occurring verb-construction relations has revealed some features of usage distributions. In general, the verbs most highly attracted to the variants of the explicit BA-constructions positioned at different levels are quite different. The findings in this area of study can be summarised as follows.

The results yielded in the collexeme analyses of the three basic types – i.e. the caused-motion BA-constructions, the resultative BA-constructions and the caused-transfer BA-constructions – have revealed that different basic types of the explicit BA-constructions strongly attract different verbs. At the level down below the basic explicit BA-constructions contain their respective specific Z-XP's. The Z-XP's examined include three transitive postverbs of each basic explicit BA-construction. It has been discovered that the verbs most highly attracted to the specific BA-constructions with different transitive postverbs (or prepositions) are also different. Since each of these selected transitive postverbs occurs merely in one type of specific BA-construction, such postverbs serve to determine the type of the BA-construction that the BA-sentence in question belongs to.¹ The persistent correspondence between the postverbs and their co-occurring verbs, then, has shown that the verbs most highly attracted to the specific BA-constructions are also different.

Although different types of BA-constructions most highly attract different verbs, The persistent semantic compatibility between the verbs and the postverbs does exist. The results yielded in various collocational analyses have clearly revealed two types of semantic compatibility between the main verb and the transitive postverb (or preposition) in the explicit BA-constructions. First, both the verb and the postverb (or preposition) bear the same semantic property. Second, the verb serves as the pre-condition for the meaning designated by the co-occurring postverb or preposition. Both the compatible patterns help make a possible coherent referent situation. Unlike the unmatched BA-construction and the verbless BA-construction, the verbs most highly attracted to a particular BA-construction are inclined to be semantically compatible with the BA-construction without any mediating component.

The same CEF representing a coherent chunk of conceptual content can be construed as different constructions with different element-trajectors. My study has further uncovered that a verb evoking the CEF is inclined to occur in one of the varying BA-constructions. Their

¹ Most transitive postverbs occur in only one type of the three basic BA-constructions.

natural tendency can be observed either in the material-theme fusion, or in the location-patient fusion.

In all, the collostructional analyses have led to a very substantial support for the statement that BA-constructions of various types and at various levels attract different groups of verbs. They have also provided the strong support for the usage distributions of various BA-constructions being construed from the same expanded CEF. To adequately account for the BA-constructions and their usage distributions, therefore, it is very necessary to recognise the existence of various types of BA-constructions and the adequate organisation of these variants into a family. The discoveries, thus, convincingly support the statement that Chinese BA-construction is a family of constructions. What the network I have been building has proven to be a very helpful mechanism for the account of the linguistic knowledge concerning the usage distributions of verbs and their various BA-constructions.

10.4 Summary

Up to this point of discussion, the major findings of this present study can be summarised in two issues – i.e. the new CEF developed as the solutions to the problem BA-constructions and Chinese BA-constructions as a family.

First, the CEF as a new theoretical model has developed on the basis of other related theoretical models. It serves as a solution to the problem BA-constructions, including the unmatched BA-constructions, the verbless BA-constructions, the BA-constructions with various trajector-objects, the ambiguous BA-constructions, the BA-constructions with fictive construction and the implicit BA-constructions. To solve the first four problems, an expanded CEF with gapped elements and extended verb sub-event including peripheral elements are required. The fifth problem BA-construction of fictive causation can be better accounted for as a series of simultaneously related sub-events which are construed as a BA-construction of causation. The formal representation of CEF also offers a better account of the implicit BA-construction.

Second, the BA-constructions are observed to vary both in their syntactic structures and semantic structures. They are better described as a family of various members. The most highly attracted verbs to these various BA-constructions are also different. Their usage

distributions can be better accounted for with the network with various levels of specificity.

Within this network of specificity, the option principle works to make correct prediction of the options at various levels. It correctly predicts the correspondence between the token-frequency of BA-construction and the optional element expressed or dismissed. The option principle working within the network of specificity also correctly predicts the degree of typicality of a particular BA-construction.

Up to this point of discussion, the two conclusive statements are made as follows. First, the new CEF that I have developed and formalised in this thesis is applicable to all these problem BA-constructions and offers an adequate account of them. Second, the option principle together with the network of specificity has revealed the interrelations of the BA-construction variants and the semantic correspondence between the most highly attracted verbs and their BA-constructions. The findings in this area also have led to the conclusive statement that the typical BA-construction is the “general” BA-construction with all its optional elements overtly expressed. In other words, the typical BA-construction is a caused-motion BA-construction containing a transitive postverb or a postverbal preposition.

To take the two issues into consideration, the unmatched BA-constructions and the verbless BA-constructions require some gapped sub-events to mediate between the verb meaning and the constructional meaning. No such mediating sub-events are necessary between the most highly attracted verbs and their construction. The relation between the verb meaning and the constructional meaning in a typical BA-construction is semantically compatible, while the verb-construction semantic relation in a non-typical BA-construction needs some gapped mediating sub-events. Even within the perspective of the various verb-construction relations, the Chinese BA-constructions have to be treated as a family.

With these two issues considered, the CEF and the option principle working within the network of BA-construction family have served as adequate solutions to the problems asked and have offered an adequate account of all the possible BA-constructions.

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